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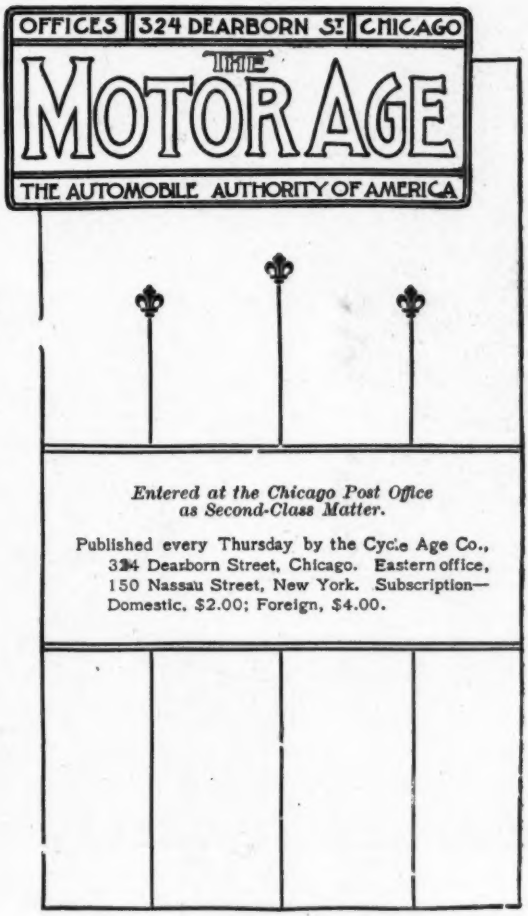

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MOTOR CYCLES IN A GREAT CENTURY RUN

NEW YORK, June 18.—The Journal's big century run on Saturday over Long Island roads had a moto-cycle division and 18 motor cycles, embracing quadricycles, tricycles and bicycles, started in two sections of twelve and six respectively.

The start of the motor machines was made at 12:30 p. m. from Bedford Rest, Brooklyn, the route being to Coney Island, to Jamaica via the Merrick road to Freeport, to Hicksville, to Hempstead and back to Bedford Rest.

The run started under the most miserable conditions. The roads were rapidly becoming thick and mushy under the drizzling rain and the air felt more like November than June. Some of the motor cyclists who left their homes after the rain had started were protected by improvised garments. One man had his head through a sheet of oilcloth, another had leggings up to his hips. Those who had depended on the weather clearing were in bad shape and suffered considerably from cold before they had gone far.

Most of the machines covered the first 16 miles, from Bedford Rest to Coney Island and return in a little less than one hour, which was good traveling considering the weather. In passing the rest on the return from the island, Atkinson was asked if his division had stopped for anything, and he called out, "Yes, for gasoline and whisky."

The success of the run may be attributed to this mixture. Without one or the other it would have failed and happily there was a plentiful supply of both along the route.

Before the run started there were a number of know-it-alls standing around who offered odds that none of the machines could make the century owing to the rain stretching the belts. "This is the weather for chain driven machines," was the cry. One manufacturer who, with his manager, came out from New York on two motor bicycles, did not start for this reason, believing that belts would stretch beyond use on the journey. As a matter of fact it did look dubious, as several machines which had started from New York with new belts had to have the latter cut down before they could start.

The start was made in two divisions, the first consisting of G. M. Fisher (Thomas), E. L. Ferguson (Thomas), E. R. Bailey (Thomas), G. W. Sherman (Thomas), E. J. Edmund (Thomas), L. Martins (Thomas), H. P. Macready (Thomas), and F. Schede and wife (De Dion). The second division did not start for some time after the first and consisted of L. D. Atkinson (Orient), R. Ross (Orient), G. F. Low (Orient), L. G. Sackett (on Orient quadricycle), B. R. Rice (on Orient quadricycle).

Schede carried his wife with him and at the start practically everybody thought be would drop out before the finish. His performance was certainly a surprise.

Bailey, who came from Albany, had to retire owing to a punctured tire early in the race.

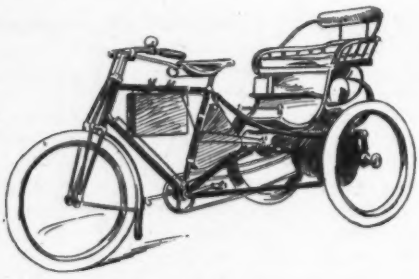
The first motocycle to arrive home was the quadricycle manned by F. Schebe and his wife, which got in at 6:50 p. m., having made the run in 6 hours and 20 minutes, including all stops. G. M. Fisher, on a Thomas Auto-bi, was second at 6:55 p. m., and E. L. Ferguson, also on a Thomas, third, arriving at 7:22. D. J. Sackett, of Waltham, Mass., on an Orient, was fourth.

Schebe, who finished first, is an electrician on the Tribune and weighs 160. His wife's weight is 110. He rode a home-made vehicle made up of a 2 1-4 horse-power De Dion motor and an Orient tricycle. He altered the latter by lengthening the wheel base and putting a seat on the rear axle directly above the engine. There was a saddle in front, on which his wife rode.

"I got through with little trouble," said Schebe to an Age man today. "On the way to Coney Island I bent my rear axle, but quickly straightened it. Between Hicksville and Amityville I broke my chain and lost 15 minutes mending it. I kept a tally of my stops, which showed

my running time to be 5 hours and 20 minutes. I am sure I can go the course in less than 5 hours."

S. D. Atkinson, of John Wanamaker's motor bicycle department, had a little squad of Orient riders under his guidance made up of R. Ross, of Bedford Park, N. Y.; Mr. Low, the Orient agent at Lakewood, N. J., and William Ross, of



The Winner of the Century

Waltham, Mass. The latter rode a quad, all the others singles fitted with Aster motors. D. J. Sackett, of Waltham, Mass., rode independently and kept with Schebe until between Amityville and Hempstead, when he sustained a puncture. After that he lost his way and went off several miles in the direction of Rockaway. Notwithstanding this he finished fourth.

"Our little bunch of Orient riders," said Mr. Atkinson to an Age man today, "resolved to stick together from start to finish and so our time represents really the time of the slowest man. At Coney Island we filled our tanks with gasoline, at Balder's, as we had a 30 mile run to Freeport before we could get any more. We had much trouble through slippery cobbles and asphalt. Ross had a bad fall at Jamaica and bent his cranks. This cost us 15 minutes. At Valley Stream, between Jamaica and Freeport, we had to stop to fix our belts, which were wet by the rain and had stretched. Low fell in the sand between Amityville and Hempstead and it took us half an hour to straighten his forks. At Hicksville we stopped three-quarters of an hour for dinner and renewed our gasoline.

"We ran away from Ross between Hempstead and Jamaica and went back a mile for him. We found his ignition giving him trouble and lost half an hour. We made a slow run home in the dark and got in at 9 o'clock. Nothing whatever happened to me and I could have gone through in less than 5 hours. No structural defect showed itself in the Orients and whatever troubles they had resulted solely from the accidents I have enumerated."

THE SINGER MOTOR BICYCLE

The motor bicycle has met with less favor in Europe, and especially in England, than it has in this country. The press of Great Britain has been busily engaged in educating riders in the belief that, if they use a motor on a bicycle at all, it must and can be used as an auxiliary power only, as for example, in climbing hills, a notion long ago exploded in this country, where greater thought has been given the subject.

The last issue of the C. T. C. Gazette, however, contained an article embodying far more of common sense than the average English article on the subject. It was prepared by F. T. Bidlake, a man who does not lay claim to great mechanical ability but possesses an abundance of good, hard-earned experience, which he applies to advantage in his frequent contributions to the press.

Motor cycling, says Mr. Bidlake, forms a connecting link between purely muscular and merely mechanical methods of locomotion, and by its detractors is cynically dismissed as exhibiting all the disadvantages of both styles and none of their advantages. I would rather say that it is a compromise, sharing the good and bad points of the cycle and the carriage. It is a half-way article in price and though it has the facility for storage of the cycle, it lacks the shelter and comfort of a car. Unquestionably it appeals more to the cyclist than a motor carriage does, but all the same the more the motor cycle develops into a carriage the better vehicle does it become.

Lately I have had an opportunity of a run on a motor bicycle around which some warmth of controversy has been developed, namely, the Singer. Its frame is unhampered by the motor, which is fitted with great skill and ingenuity wholly within the rear wheel, whose width is consequently great (involving an abnor-

mal tread of about 7 inches), but in which the ordinary diameter of 26 inches is retained. The relegation to the rear of all the mechanism contributes greatly to the convenience of the construction for the use of ladies, whose costumes are in no way involved in any gearing, pipes, or reservoirs, nor does the close packing of the motor and its essentials within the wheel render the parts so inaccessible for adjustment and attention as might be imagined. With angled funnels, petrol and oil can be filled in handily, and with purpose-made spanners nuts and bolts can be got at fairly well, and it is only for replacements and the rarely needed big repairs that the wheel itself requires to be taken to pieces. The load being at the rear, moreover, makes for stability on grease. Every cyclist knows that the throwing of weight on the front wheel aggravates the risk of slipping.

Further, the motor being within the wheel enables direct driving with spur and pinion to be contrived, so that straps and chains are dispensed with.

Within clearly defined limits the Singer cycle has its value. It is limited in speed to about 18 miles an hour, under favorable circumstances; needs a little pedaling assistance on slopes steeper than one in 18 or thereabouts, according to smoothness; and is better not taken where one in nine is exceeded, as the pedaling then becomes oppressive, and all dismounted pushing is a heavy toil. The limit in speed was brought home to me by my being passed helplessly by two riders on one of my trial spins, when getting all I could, without pedaling, out of the machine, but the speed limit I had reached was one which appeals sufficiently to a very large number of people, if they may be believed. On the speed question the desires of riders are, however, prone to grow. I could name not a few motor cyclists who have publicly condemned fast riding by cyclists, before they were themselves motor cyclists. I can put my finger on well known names of men who have agitated against harmless road competitions by unassisted riders, who, themselves now aided by petrol, make nothing of traveling constantly at speeds greater than the winning rates of the fastest cycle road events ever held. So you never can tell whether the professed love of limited speed may not change; may not, in fact, mean that the professor of such love has hitherto drawn as the limit for everybody only just that speed which he could himself attain at the time of his framing his definition.

The distance limit without recharge is normally 50 miles, but a secondary tank can be arranged readily enough to cover a much longer journey; but the most serious drawback is the necessity for attending to the lubrication of the engine every twenty miles. As the engine is wholly within a moving wheel, the lubrication requires a dismount. Foul oil has to be liberated, fresh oil poured in, and the job involves the removal of plugs and the handling of messy oil vessels. Further, a dismount is necessary for any adjustment that may be required of the air shutter due to changes of atmospheric conditions, a point of urgency usually at the beginning only of a ride. To make the correct adjustment may involve one or two false starts, but when made it is correct, as a rule, for many hours.

Assuming the air is right, and the lubrication attended to, the management of the machine is perfectly simple. No bewildering array of levers worries the novice. All that has to be done is to start the cycle as an ordinary machine, turn the revolving handle grip on the left side, a little at first, and then more or less as required to adjust speed. No finesse is possible, no strategic combinations of various forms of control. Control of more or less is all that is allowed you, so that the veteran of ten thousand miles' experience is no better off than the beginner after his first half hour. This simplicity is its greatest feature. To the expert it presents a limitation tending to monotony, as he would infinitely prefer a little complication, with a chance, say, of varying the timing of the ignition, to the simpler, restricted range of control. Anyone can learn the Singer in five minutes, or less, but this simplicity means the leveling down of the skillful driver to the average of the meanest intelligence. The real fascination of driving, as apart from riding, is having gears to change, mixture to regulate, ignition to time, accelerators and valve regulators to manipulate, when the skill of manipulation counts for much, and the man who knows and is fond of his engine can humor and coax it by the help of long experience of its responses to the touch of its master.

TAYLOR'S TRIUMPHAL TOUR OF EUROPE

What was to be a great match, ended amid a terrible thunderstorm and the return of the money to the several thousands of spectators who, on the 1st, had gone to the Zurenborg track, Antwerp, to see the Taylor-Protin-Momo match. Just after the start of the first heat it began to rain, but the riders continued. Protin ran away, taking 10, then 20 and even 50 meters, but the major, having Momo on his rear wheel, went after the fugitive and caught him before the bell. Then Momo jumped away and again the American set the pace. In the last turn Protin tried to jump, but this time the major started for good and won by three lengths. Then the storm became more violent and the riders refused to proceed, but the public did not care to leave. For half an hour it was thought the weather would clear, but as it did not, and fearing the experience of the Bordeaux track some time ago, the management returned the money. A four-cornered match between Taylor, Momo, Protin and Grogna was to have taken place in Antwerp on the 10th.

The two-days' meeting held at the Friedenau track in Berlin on June 2 and 3 went on record as one of the best and most successful held on the German track. It will also, for all time, remain a memorable day in Major Taylor's memory, for he defeated the most splendid lot of international riders he could have wished to meet.

There were about 4,000 people at the first day's races, at which, being held on Sunday, Taylor was a spectator. In the first heat of the kilometer scratch race, Jacquelin was beaten by Huber and Ellegaard. The Dane won by a half length, while Huber took second place by a few inches. In the second heat Arend won, sitting up, from Seidl. The latter also won the consolation heat. The three winners lined up in the final which was won by half a length by Arend from Ellegaard with Seidl two lengths behind.

The second scratch race was captured by Schilling from Peter and Muendner. The latter also won the lap race. The final event was the tandem race which proved most exciting and resulted in a win by Huber-Seidl from Ellegaard-Mayer.

On the second day fully 10,000 people attended and the gates had to be closed before the racing started. The former world's champion Willy Arend was greeted with enthusiasm.

The following started in the invitation scratch race: Major Taylor, American; Jacquelin, French; Ellegaard, Dane; Seidl, Austrian; W. Arend and Huber, Germans. In the first heat Arend went ahead at the quarter, increasing the speed and entering the homestretch three-quarters of a length ahead of Huber. The latter made a good effort, but the old-timer won amid a thunder of hurrahs, while Jacquelin was third, having given up in the last turn. In the second heat Major Taylor kept a length in the rear until the bell when he went to the front and, taking five lengths, won sitting up from Ellegaard and Seidl. In the consolation event Huber took the lead at the bell. Jacquelin tried a runaway, but was caught by the others who passed him easily. Huber won.

Thus the two Germans and the American came out for the final, and everybody was on tiptoe. The immense crowd cheered Arend wildly, while the major had a little smile, not too confident, however, of the outcome.

At the pistol shot none wanted to take the lead, but finally Huber made for the outside and for half a lap all three went around on top of the banking, the major keeping two lengths in the rear. At the clock Taylor feinted a runaway and thus passed ahead, taking the lead and preventing Arend from making his favorite jump at the quarter. However, the German had the courage and at the quarter came up rapidly and wanted to pass. But Taylor, increasing the speed, kept Arend going on the outside. The latter came up even and for over 250 meters the men rode neck to neck amid deafening cheers and indescribable enthusiasm. The finish was really undecided until, at 50 meters, Taylor made a last and successful effort, passing the tape a winner by a quarter of a length.

Taylor was given a long ovation, but it was for the old champion to get the real honors, for the crowd cheered him for many minutes. After the race the major shook hands with his German friend and said: "Why, you old man, you are going like a young one. That was not an easy race. I congratulate you."

The mile handicap was interesting, in-

asmuch as Jacquelin, from scratch, won it quite easily from Mayer, 40 meters, and Huber also scratch. The time was 2:03, considered very fast across the ocean. In the tandem race the Huber-Seidl team again defeated the Ellegaard-Mayer team by three lengths. Jacquelin-Arend also ran, but on an old tandem which almost broke down at the first turn.

Taylor met Ellegaard in a match race at Copenhagen on June 5, in a series of three races. The first was one mile and was won by the Dane, Taylor being too confident that he would be able to win by a jump in the last 40 yards. The next heat was a quarter and at the start Taylor pursued his usual tactics and refused to go to the front. He took the lead at 300 meters, however, and won easily by fully a length. The last heat was at one mile. Taylor had the race well in hand 50 yards from the finish, but his tire punctured and the Dane won. Taylor asked his opponent whether he would run the race over, but the latter refused, causing Taylor to remark that he was "a good rider but a poor sportsman." The sympathies of the spectators were with Taylor in his request for another trial.

Taylor was matched against Arend, at Hanover, next day. By an error he and his manager took a wrong boat and arrived at a town many miles from the scene of the race. It was necessary to change trains six times before they arrived at Hanover, after a journey lasting 21 hours, just an hour before the event was scheduled to occur.

There was talk of a postponement until the next day, in order to allow Taylor to rest, but it was finally decided to go on with the race two hours later than scheduled. To the surprise of every one Taylor rode splendidly. The heats were at 1,000, 1,500 and 2,000 meters, and Taylor won all of them with ease. Hanover is Arend's home town and the crowd was enormous, some of the people paying large sums for seats.

A dispatch from Paris, last week, announced that Taylor had been finding difficulty in securing engagements and would probably return to the United States about June 26. A later cablegram says that he is in negotiation with a French manager and that if the negotiations amount to anything he may stay over there for a long time yet.

The annual Great Prize of Paris will, this year, be under the patronage of the government. Under date of May 31 the Minister of Instruction and Fine Art advised the president of the Paris council that the government will offer six valuable art pieces of the Sevres manufacture. It is expected that several of the ministers and even the president will assist at the meeting which takes place June 23, 27 and 30.

LATE RACES AT HOME AND ABROAD

Among all middle distance events in Europe the one which obtains the best success is the one-hour paced race. The one given at the Sportplatz, Leipzig, Germany, on June 2, must have been keenly fought, as the winner came within less than 40 meters of Stinson's record. There were 8,000 spectators. The starters were Bouhours, Dickentmann, Robl, Ryser and Heiny. The first 20 kilometers were most interesting, as the three riders first named took the lead from each other in turn after some fine racing. Finally Dickentmann, who had a superior pacing outfit, passed ahead and took several laps, winning easily, covering 64 kilometers 640 meters during the hour as against Stinson's record of 64 kilometers 673 meters or only 33 meters behind the world's record. Robl was second and Bouhours third. Many records were broken.

Newark, June 16.—Kramer still remains the top notch sprinter of the big brigade of money chasers that gather at Vailsburg every Sunday. He this afternoon made his usual close but clean cut win of the dash, but was mixed up in the smash up that marked the last mile of the long handicap.

Tom Cooper, the 1899 champion, is fast rounding into form and gave Kramer a close chase in the half, with Freeman third and Newhouse fourth. To avoid further suspicion of team work, the heats were arranged by the handicapper and the field was winnowed down to two semi-finals of four each, the first and second in each making up a final of four men.

In his trial heat Freeman performed a plucky feat that won applause. He was forced off the track on the inside in the last lap, but regained the boards, and after a great chase qualified for the

semifinal. In the first of these Kramer beat Freeman, with McFarland and Fisher as runners up. In the second Cooper scored over Newhouse, with Kimble and Newkirk put out of the final. With such a quartette as Kramer, Cooper, Freeman and Newhouse, the final was a merry sprint with the men finishing in a close bunch in that order.

Pretty nearly the entire professional sprinting brigade started in the five-mile handicap and lap prizes made the limit men carry the field along at a lively clip. In the last mile, as the men were riding together, bunched, one of the riders ran into an umpire and a big smash up was the result, which put such good men as Kramer, Freeman, Kimbie and Downing out of the race. McFarland led into the stretch, but Cooper (100) came from the bunch with an old-time rush and nailed him on the tape, with Arthur Ross (150) third, Collett (100) fourth and King (250) fifth. The time was 10:50. Had there not been a slackening for the spill and had the good men that went down been in the final sprint, it is probable that McFarland's handicap record of 10:45 would have gone by the board.

Hurley again was the fastest amateur of the day. He won the quarter in 33 2-5 seconds, with Billington second, Bardgett of Buffalo third, and McClelland fourth.

Charles Kastendieck rode a great race unpaced from the 160 yard limit in the mile handicap, winning in 2:03, with Hurley (scratch) second, Gus Welsing (20) third, and Dove (60) fourth.

Arthur Ross, who is to ride McFarland a paced match at this track next Saturday, rode an exhibition five miles, establishing a new set of records for the track as follows: 1:29 1-5, 3:01, 4:25 2-5, 6:16 1-5, 7:51 3-5. It will be noticed that he covered the third mile in the remarkable time of 1:24 2-5. Michael's record for this track was 8:39.

METROPOLITAN FIXTURES

New York, June 16.—Racing will be under way at high pressure in the metropolitan district this week.

The tenth annual meet of Atalanta Wheelmen, of Newark, scheduled for the Vailsburg track yesterday afternoon, was postponed on account of rain until next Saturday, with the 20 mile motor paced race between McFarland and Ross as the feature. The same afternoon Brady will open Manhattan Beach with a bix six cornered motor paced race with $1,625 distributed in prizes, first money being $600. Michael and Walthour are the stars of those already entered. On Monday, June 24, indoor night racing will be inaugurated by a 25-mile motor paced match between McFarland and Nelson.

The 12th annual meet of the Kings County Wheelmen at Manhattan Beach on Saturday, June 29, will present a variety of races. There will be a team professional handicap, in which, in the final heat the men will announce their mates and assist one another in every way but fouling, holding back the bunch and making pace for one another being permitted.

Sunday racing will be continued at Vailsburg. The grand jury refused to render an indictment, being convinced by the reports of the sheriff and others that the meets were conducted in an orderly manner.

A RACING COMBINE

New York, June 14.—At a meeting of track owners, held at Providence yesterday, preliminary steps were taken toward the establishment of a middle distance motor paced racing circuit somewhat on the lines of the baseball leagues, with the addition of a grand prize taken from the gate receipts, to be distributed at the close of the season.

The tracks included and weekly schedule proposed are Madison Square Garden, New York, Monday nights; Charles River Park, Boston, Tuesday evenings; Providence Coliseum, Wednesday evenings; Woodside Park, Philadelphia, Saturday afternoons, and Pittsburg, Saturday evenings.

The riders sought to be and said to be already included in the exclusive combine are Nelson, McFarland, Stinson, Linton, Walthour, Champion and Michael.

A schedule is to be arranged so that every rider will meet every other rider on every track, three men meeting at Charles River Park and Woodside Park and two at the other tracks. There is talk of permitting riders in the combine to meet one another only on the circuit tracks, though they can meet other riders on other tracks by special permission of the association.

Notable omissions from the circuit are the Manhattan Beach, Baltimore, Washington, Bridgeport, Brockton, New Haven, Revere Beach and Worcester tracks, and Harry Elkes, Edouard Taylore, Archie McEachern, Burns Pierce, Hardy Downing, the Butler brothers, Arthur Ross and F. J. Cadwell are able pace followers left out of the calculations.

The combine evidently has close relation to the rivalry between Madison Square Garden and Manhattan Beach in New York, and Charles River Park and Revere Beach in Boston.

The combine will particularly affect

Brady's scheme of big six-cornered open races at Manhattan Beach, the first of which is to be run next Saturday with $1,625 prizes, and it is said that at least two of the riders named in the combine will start in the race.

Brady already has a contract with Harry Elkes for his exclusive metropolitan appearances at his track and it remains to be seen whether the riders in the combine will withstand the temptation Brady's proposed big purses will offer, and the general demand that would be champions meet Harry Elkes and all others who may establish a right to championship aspirations.

A part of the scheme is the setting apart of 5 per cent of the gross receipts for a grand prize to be distributed according to the percentage of races won at the close of the season, which is planned to last from July 6th well into October.

LINTON'S FIRST RACE

Tom Linton was defeated in his first race on this side. He met Nelson at Boston last week in a 25-mile paced race. The last time the men saw each other was in 1899, when Linton was the star of the L. A. W. meet and Nelson was a promising amateur. Last week, however, the positions were reversed, for Nelson won easily by more than two and a half laps. It was clear, however, that Linton is not yet in condition to do his best. Nelson's time was 40 minutes 2 seconds.

BELGIAN TEAM WINS AT ANTWERP

The Belgian-Italian team race which took place at Antwerp on June 2 proved an exciting event and the little Belgian only won by two points. The finish in the three heats was as follows:

Momo, Grogna, Conelli, Protin; Grogna, Protin, Conelli, Momo; Conelli, Grogna, Protin, Momo. Protin was the surprise of the day. The former crack who had declared he would not ride again, showed fine form and will take part in most of the remaining events of the season. He was given a hearty welcome.

GOOD PACEMAKERS

The cyclist who loves to ride to pace enjoys opportunities in these days of the automobile that were unknown two or three years ago. Some of the big gasoline machines that whirl up Fifth avenue, New York, en route for the splendid system of roads through Westchester county, their occupants equipped with mesh face screens and big glass goggles to protect them from the rushing wind and flying dust, set a pace, when they get out upon the country roads, that comparatively few cyclists can follow. As a rule, however, these big flyers pick up ambitious cyclists, singly and in bunches, until when they cross the Harlem and strike into Jerome avenue they invariably have a score or more of riders trailing along in their wake. As the more frequented parts of the avenue are left behind the pace increases, until when the parties reach the Pelham road, well on toward Mount Vernon and New Rochelle, they are jumping along at pretty nearly railroad speed. Then it is that the ranks of the trailers begin to thin out, and the end of the first 10 or 15 miles finds but few of the pedalers left within sight of the automobile. It is great sport while it lasts, however, and the motorists seem to enjoy it as much as do the cyclists.

Some of the contestants in this year's road racing events have been following auto pace on the road for the past month, and declare it the best method of training they have ever employed. The machines throw up an uncomfortable amount of dust at times and the odor of the gasoline is not pleasant, but the pace is, as a rule, steady and fast enough most of the time to bring out the very best there is in a road-racing cyclist.

NELSON DEFEATS STINSON

Providence, R. I., June 12.—In the speediest motor-paced race this season Nelson defeated Stinson this evening. It was the first defeat suffered by Stinson this year. While he lost one lap through the breaking of his pace, the other two laps which Nelson gained on him were secured mainly on their merits.

It was a ding dong race from start to finish, and after the first mile Nelson was to the fore throughout.

The time of the 25 miles was 29:28 1-5, four seconds behind the state record made on Memorial day.

SPLIT IN THE C. R. C.

New York, June 16.—Although a formal vote on the question will not be taken until June 23rd, the New York division has practically resolved to secede from the Century Road Club of America and exist as the Century Road Club Association, with headquarters at 310 West Fifty-third street. The New York division's membership is 450, which is said to very nearly equal the entire membership in all other states combined. The local division claims that it practically supports the national organization, $1.25 of the $1.50 yearly dues going to the main body. It fur-

ther complains of the election by the national body of a candidate rejected by the state division.

The C. R. C. A. proposes to control century riding and road records on the same lines as the C. R. C. The latter was organized at Chicago in 1891.

RACING IN THE WEST

Salt Lake City, June 15.—This city is now giving the best racing in the west and perhaps in the entire country. Among the riders here are Iver, Gus and John Lawson, J. N. Chapman, of Atlanta; A. F. Bell, Wm. Vaughn and W. F. King, of California; the Turville brothers, of Philadelphia; Green, of England; Walne, of Australia, and Frank Hoffmann, the speedy California amateur. They are doing good work as was shown on the 7th, when Iver Lawson broke the world's record for a mile handicap, doing the distance in 1:55 4-5, beating his own record, made on the same track, of 1:59.

The Butte Athletic Association will open its nine-lap track on the 28th, giving races nightly and offering inducements to men at present riding in the east.

NEW TRACK AT SYRACUSE

Syracuse, June 17.—The Coliseum Cycle Track Association has been incorporated with a capital stock of $6,000 to construct and maintain a cycle racing track. The directors are M. F. Tanner, A. E. Hughes and W. F. S. Farmer of Syracuse. The site of the proposed track will be at Onondaga Valley. It will be eight laps to a mile and races will be held two nights a week by electric light. The capital stock has been taken up mostly by local men.

FERRARI WINS CHAMPIONSHIP

The Italian championships were run at Ravenne on June 2 and 3. Ferrari won the professional championship from Bixio and Tommaselli, while Brusoni won the amateur event. In the match between the professionals and amateurs Ferrari won again. In the open race the result was reversed, Tommaselli being the winner, Bixio second and Ferrari third.

COASTER BRAKE LUBRICATION

"The chief trouble with coaster brakes," said Mr. Westlick, a Bridgeport agent, to a representative of this paper, "is that the average brake loses its lubrication too quickly and the result is a tried brake and trouble through the complete locking on the wheel." Mr. Westlick personally uses graphite, which he injects through the oil hole, and he thinks it the best form of lubrication. He thinks that if the manufacturers used a solid oil hole cover of a screw pattern it would do away with a lot of trouble. This feature of the case was mentioned to Mr. Glover, of the P. & F. Corbin Co., large makers of coaster brakes. Mr. Glover agreed that there is a lot of truth in what Mr. Westlick said. He said that a proper lubricant, plentifully supplied, was the only and sure preventative against trouble.

JACQUELIN WILL COME

Jacquelin, the French sprinter, champion of the world, will ride in America. Brady has signed him for a long series of races. Jacquelin will arrive late in July and remain for the balance of the season.

CYCLE TRADE IN UTICA

Utica, N. Y., June 15.—Clark, Horrocks & Co. say that in February and March they sold more cycles than they ever did before in the same months, but that the trade fell off in April and in May ran a long way behind the average. The demand has been for cheap machines. G. H. Broadbent & Co. are the pioneers in motor cycles here and are handling the Orient. Carroll Bros., owners of the Utica Cycle Co., say that the repair business has been excellent, but that the sale of machines has been backward.

The Hagerstown club is making extensive preparations for the meet of the Maryland division of the L. A. W. The event will probably occur on July 2, 3 and 4. The plans comprise a big carnival parade, with prizes for grotesque costumes; an entertainment in the Academy of Music on the second night; a run to Antietam battlefield that day; road races on the morning of July 4 and track races on the Hagerstown fair grounds in the afternoon.

Walter Sanger denies that he has any intention of following the national circuit, but says he expects to do some racing in Wisconsin. Sanger has a speedy horse with which he has frequent trials to test his speed.

The sale of cycle path tags in Rochester, last year, ran up to 44,000. So far this season 35,000 have been sold and the authorities confidently anticipate a total sale of 50,000.

ENGLISH VEHICLES IN THE LIVERPOOL TESTS

Last week's issue of this paper contained illustrations and descriptions of some of the vehicles submitted for test in the now famous Liverpool trials. The remainder are illustrated in this issue. Following is a report of the trials themselves, condensed from the report of the Autocar:

To deal first with the hill trials (unladen) which occupied practically the whole of Monday, we may say they were a demonstration from the start of the very great improvement which has been made in vehicles for heavy traffic since the last trials took place less than two years ago. The machines were first sent up unladen, so that it could be ascertained if there were sufficient adhesion at the driving wheels to enable the vehicles to be driven light up stiff gradients. We may say that this year the worst performer did, to all intents and purposes, as well as the best last time. The first van sent up was D2, the Coulthard. It went up very well, restarting without difficulty on the one in nine section of the grade, but the driver omitted to lock his balance gear at the critical moment, so on the cobble section of the hill just above D in the plan he slipped badly, but managed to restart and reach the summit. The descent was made in good style, the brake trial appearing as the shortest made during the series, and to be very little over a couple of yards. The Leyland B1 restarted smartly on the one in nine section just below B, and negotiated the painful cobbles on the second stage of the gradient with practically no optical slip. The stop was effected in about one length. The Mann lorry, D4, took the hill smartly, restarted with ease, and there was no slip on the cobbles, and the stop on the one in nine descent was made just inside a length. D3, the Mann tip van, then made the fastest, though not quietest, ascent. The slip on the cobbles was not enough to effect the running, though this was more than in the case of the lorry. The stop was made in just over half a length. The Simpson-Bibby lorry, D5, stopped on dead center, had to back slightly on restarting, but at the third attempt went away quite cleanly. It stopped on the cobbles through the wheels utterly failing to bite for the moment, but was restarted without much difficulty, though the slip was so considerable that another stop twenty yards further on was made. The machine was under good control down hill, and ran about a length and a quarter after the whistle blew. C1, the large Thornycroft, restarted very freely, made a clean job of the cobbles, though the machine swung slightly laterally at one point, but picked up instantly. The stop was made in half a length. D1, the small Thornycroft, next attacked the slope, restarted at once, and ascended the cobble stretch with no visible skidding. She ran a little less than a length after the brake signal. A1 and A2, the two Milnes machines, both restarted easily, and the slip on the cobbles was slight in the case of one machine, and nil in the case of the other. The running of these machines, which were to all intents and purposes sister vehicles, was a good illustration of what a driver may do for his machine in trials of this kind, as on the descent, in one instance, a quite unnecessary speed was permitted, so that when the brake signal was given the machine ran nearly two lengths and a half, but the other one, which was handled more cautiously at the same point, was pulled up in three-quarters of a length.

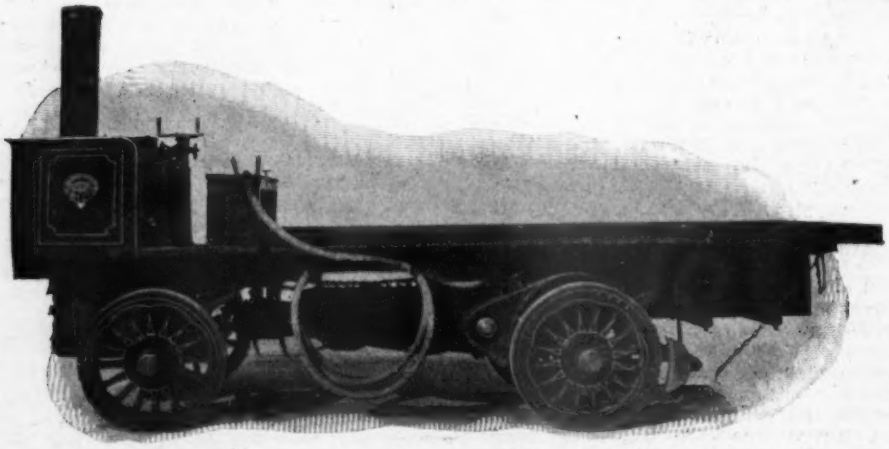
Tests of backing machines into warehouses were made at George Dock, and were so much a question of skill and judgment on the part of the drivers that little value can be placed upon the results unless a careful and lengthy series of measurements be taken of the machines, and even then they are largely discounted by the human element. We think we may safely say that the slowest machine was worked in as speedily as any horse-hauled van carrying a similar load—for all the vans were now loaded—could have been. The record manoeuvre has made by the Mann lorry,

whose driver was exceedingly smart and clever, and ran his machine straight back into the bay in one movement without any backing or filling in 36 seconds.

From the docks adjournment was made to Everton Brow to witness the hill trials with full loads. A2, the Milnes, started from rest on one in nine at once, and went up to the top without a falter. B1, the Leyland, started excellently from rest, and also made a clean ascent. Stopped in about four yards without locking the wheels. D2, the Coulthard, made a perfect restart on the hill, and ran to the top at well over three miles an hour. The descending stop was made in just over half a length without skidding. D1, the small Thornycroft, restarted perfectly with no slip, and stopped descending in less than three yards without skidding. D4, the Mann lorry, restarted instantly on signal, easily scaled the hill, and stopped in about five yards without skidding. D5, the Simpson-Bibby, restarted sharply without skidding, but slipped somewhat on the cobbles and came to a stand, though it was restarted without difficulty, as the slipping was not enough to be serious. D3, the Mann tip van, performed as well as the lorry, and pulled up in five yards. The big Thornycroft got on dead center, but by running back slightly downwards effected a clean restart, and negotiated the cobbles higher up without trouble. Stopped when coming somewhat fast in less than the length of the vehicle without skidding. A1, the Milnes, missed gear in changing to low speed, but got away again instantly, and restarted at the usual place with very slight skid and had no trouble on the cobbles, though hampered by a big crowd of people. Stopped in a foot from signal on descent, the quickest stop made.

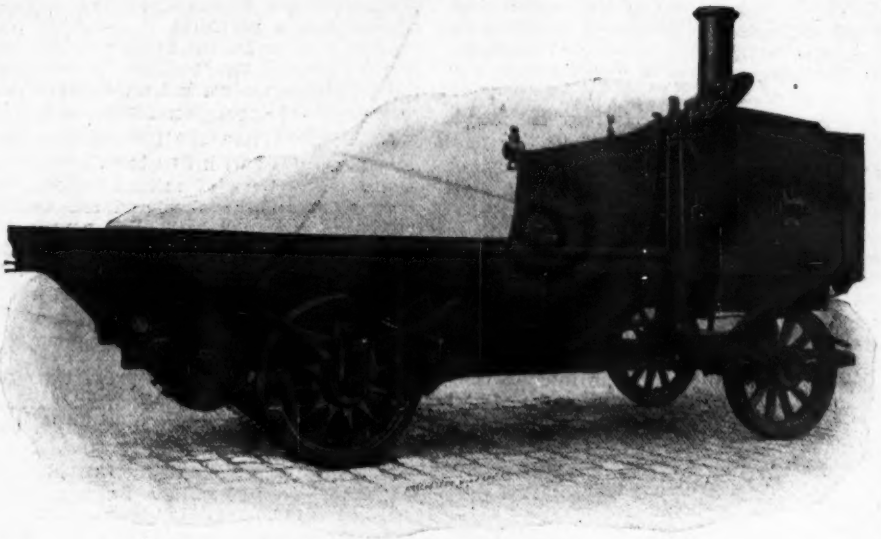
The yard at Georges Dock was quite crowded with vehicles heavy and light when we reached it at 9:30 (second day), to learn that both the Milnes petrol lorries had left for Manchester. At various intervals the remaining tractors issued from the yard in the following order: The Lancashire Motor Co.'s vehicle followed the oil cars, and was followed in its turn by the big Thornycroft wagon carrying six and a half tons, and looking quite monumental as it moved off through the gates. It was followed again by its stable companion, the D1, the smaller Thornycroft, D2 Coulthard and Co.'s lorry, then both the Manns, D3 and D4 respectively, concluding with D5, of Messrs. Simpson and Bibby. The route followed was the main road between Liverpool and Manchester, which runs via Garston, Ditton, Widnes, Sankey, Warrington, where a stop was made for lunch, and then on via Cadishead, the Eccles New Road, and Salford, into Manchester, and the Belle Vue Depot, after they had duly delivered their loads.

Once clear of Liverpool, the road was found to be in excellent condition. From Eccles on, the half-paved roads common to the radiating Mancunian thoroughfares are met with, and, although these in no case appeared to discompose the motor lorries, they were realized by all the travelers in the solid-tired light cars. Also, so far as hill tests go, there are none on the route chosen worthy of the name, so that it may be said the trial was favored by overhead and underfoot circumstances. In a six-horsepower



THE LEYLAND WAGON.

ENGLISH VEHICLES FOR LIVERPOOL TRIALS.



THE SIMPSON-BIBBY LORRY.

Daimler wagonette, we went in chase of the ponderous vehicles, which by now had had some considerable law. Before reaching the Dingle terminus we overtook first D5, the Simpson and Bibby lorry, and a little later the Mann cart, both traveling in excellent style. Just before reaching Garston we ran past the Thornycroft tender, following hard on the heels of D1, the smaller Thornycroft, and on the hill at Garston itself we ran by the giant of the piece, C1 (Thornycroft), rattling along in great style, with its seven tons of load, and its live freight. Beyond (a mile) D2, the Coulthard, labelled as carrying five tons, was found to be doing well, as was B1, the Lancashire Motor Co.'s wagon, better known as the Leyland, two miles beyond Speke Church. A halt was called at the Child of Hale Inn, during which the big Thornycroft, the Coulthard, and the Leyland passed in review. The pace here was certainly quite eight miles an hour.

About two miles from Widnes a very rough stretch of road, skirting some foully smelling chemical works, was passed over, but when the town was reached the first depot was met with in front of the Town Hall, and the ornamental members of the function were received by the Mayor. Upon arriving, we discovered the two Milnes spirit cars drawn up beside the depot, and learnt from the observers aboard that they had run so far without a hitch.

Before the time to leave the Leyland, the Coulthard, and the big and small Thornycrofts had turned up. Reaching the outskirts of Warrington, a curious incident occurred. A police inspector stepped into the road, and upon his holding up his hand, the car was stopped. At once we jumped to the conclusion that we were to suffer for the speed of the twenty horsepower Daimler judges' car, driven by Mr. Critchley, which had preceded us, and this was so. We were held up for a time, and then for our sins were, with the other light and heavy vehicles as they overtook us, obliged to drive in procession into the town at the pace set by two police constables, who marched proudly and abreast in front. All Warrington was out in the streets, and the cars were turned into the grounds of the Town Hall, the heavy lorries going into the big yard at the side. After photography and lunch, the road was once again taken, and upon turning into the depot yard to see the competing vehicles come out, we found that the big Thornycroft had gone through a soft place into a drain, but had pulled out easily under its own power, while in coming out the Coulthard also found two tender spots. Before quitting at 2:30, all the heavy vehicles had come in and were moving out. The Mann cart had, we understood, had little delay owing to clinker, but nothing else. All the vehicles had turned up at Warrington except the Simpson-Bibby, which we understand at the moment of writing was seen in difficulties about seven miles out of Liverpool.

After Warrington the next stop, a depot, was at Higher Irlam, where we once more found the two Milnes oil vehicles, which had traveled as steadily and as surely as upon the previous stages. In their company was B1, the Leyland, tak-

ing water, while during our stay the Coulthard and the smaller Thornycroft came through. Upon reaching Manchester, the light and leading of the association and its assistants were received on the steps of the Town Hall by the Lord Mayor of Manchester, who did similar honors on the occasion of the thousand miles last year. The heavy cars, those of them which had arrived, first delivered their loads in Manchester and then proceeded to Belle Vue for observation and checking.

The Simpson-Bibby stopped at Speke owing to the frame being twisted. This was due to overloading on Monday, causing hot bearings.

The third day rain fell heavily before and after midnight, so that when the hour for starting arrived the sets were well covered with greasy mud. Notwithstanding this, we failed to notice any skidding on the part of the heavy vehicles. The loads on the vans were somewhat in excess of those carried on the previous day, the big Thornycroft and the Leyland freights piling up about sixteen to seventeen feet above the road level, and making a great impression on the public mind.

The two Milnes petrol vans as usual led out, A1 carrying naked a load of large unbreakable pulleys. All who went the thousand miles last year will remember the Bolton-Manchester road with its awful sets, but the horrible going did not affect the lorries, which banged over it in good style. About two hours were occupied in reaching Bolton, eleven and a half miles, where a halt for lunch was called, quitting again about 1:30. The roads now well dried up, but still remained bad going from the recurring patches of sets.

Leaving in a light car after two o'clock, we found most of the lorries in Leigh, seven and a half miles, engaged in watering. It was now the Leyland's turn to break through the road, and we found it had gone through the cobbles about eight inches just off the main road. The car was jacked up and runners put down, and it came out in excellent style. After a short halt all the vehicles got under weigh for St. Helens, which, after a run of seven and a half miles, was safely reached over indifferent and bumpy roads. Large crowds lined the streets of all the towns and villages, and enormous enthusiasm has been shown throughout.

Of no less interest than the vehicles illustrated and described last week is the Leyland, manufactured by the Lancashire Steam Motor Co. The Leyland wagon has a platform 12 ft. 9 in. long by 6 ft. 5 in. wide, the available space for goods being 75 square feet. This platform rests on the main frame, which is of channel steel throughout. The height of the platform from the ground is 3 ft. 6 in. when loaded with five tons.

The wheels are of military type with steel naves, oak spokes and ash felloes. The driving power is applied at the felloes close to the tire, thus relieving the spokes of all strain put upon the wheels by the drive. The front wheels are 2 ft. 10 in. in diameter; the tires 4 inches wide. The rear wheels are 3 feet in diameter with 5 inch tires.

The boiler is of the fire-proof type and has 80 square feet of heating surface. It is fired from the top, through a central chute, the fuel used being coke. It is tubed with seamless copper tube and a fusible plug is fitted in the crown sheet of the fire box. It is constructed for a working pressure of 210 pounds and tested to 450 pounds. The safety valve is set at 225 pounds and blows into the water tank. The automatic feed pump works from the compensating gear shaft and is so arranged that any excess of water above the amount required to feed the boilers is pumped back into the tank. A small steam pump is placed under the driver's seat and is used as an auxiliary feed.

The fire is regulated by a hinged ash pan and also by the lid covering the central firing chute. The boiler is placed in front of the driver's seat and the bunkers are on either side and hold sufficient fuel for an ordinary day's work. The engine is a horizontal compound reversing, having cylinders 3½ inches and 6¼ inches, with a stroke of 6, with a normal speed of 420 revolutions per minute. The engine and all gears are entirely enclosed in dust proof oil—type castings. There are no keys used in the vehicle, all wheels and gears being put on flanges. Castelated nuts are used throughout, each being secured by a split pin. All parts of this vehicle are carefully made to gauge and are interchangeable.

The Pomona Engine Works, of Manchester, manufactures a vehicle known as the Simpson-Bibby. The machine is 7 feet long by 6 ft. 6 in. wide over all. The level platform is 11 ft. 6 in. by 6 ft. 6 in., giving about 75 square feet of available carrying surface. The machine is designed to carry a load of 5 tons at 5 miles an hour and to haul a trailer carrying an additional load of 3 tons, and to ascend an 11 per cent grade.

The driving wheels are 3 feet in diameter, with 6 inch tires, and the steering

wheels 32 inches in diameter with 4½ inch tires.

The boiler is of special type and is the result of many years of patient labor and experiment. It is of the modified flash type, generating superheated steam under automatic control. Before starting the engine a hand pump is used to pump enough water into the flash tubes to generate steam, as with the Serpollet. As soon as a start is made a pump, driven by the engine, maintains the supply. Either coal or coke may be used as fuel.

The engines, of which there are two, are single acting, each having three cylinders 4 inches in diameter by 4 inch stroke, driving on cranks set at 120 degrees. No slide valves, piston valves or stuffing boxes are required, the steam being admitted by plain lift valves only. There are no loose parts in the crank chamber. The practice in this respect is very similar to Serpollet's and is unquestionably the correct thing for engines using superheated steam. Fifty brake horsepower is developed with the two engines running at full power.

Each three cylinder engine drives its own wheel, no balance gear being used, but to meet any specially severe resistance or get the machine from a bad place in the road there is a clutch between the engines whereby they can be locked together, so that the two rear wheels may be rigidly connected and receive an equal amount of driving power. Sufficient water is carried for three hours' run and the bunkers hold sufficient coal for six hours under load.

A steam sanding gear is fitted for use in frosty weather and so arranged that the sand is blown directly under the tread of the wheels where required, little or none being wasted.

As some readers may not be acquainted with the term "flash," it may be explained that the flash type of generator consists of small, thick tubes or coils, which are heated to a high temperature and into which only so much water is injected as they can instantly convert into steam. The action is similar to dropping a little water on a red hot iron.

COUTHARD & CO.'S VEHICLE.

Coulthard & Co.'s vehicle is also a steam machine of the Lorry type, with flat platform, 12 feet 6 inches by 6 feet 6 inches. The main frame of the vehicle is of channel steel so braced and constructed as to carry the whole of the machinery, boiler and tanks, the frame itself being supported on the axles by long laminated springs. The engine is of the company's improved compound link reversing gear pattern, developing 25 brake horsepower. The high pressure cylinder is 3¾ inches and the low pressure cylinder 7

inches in diameter, both having a stroke of 6 inches and a normal speed of 450 revolutions per minute. At this speed the vehicle is geared to travel at 2½ and 5 miles an hour.

A distinguishing feature of this engine is the arrangement of the valves and main cover, only one cover being used for both cylinders and piston valves. It is arranged also to serve as a receiver while supporting the multiplyer, which is used for admitting live steam to the low pressure cylinder, the exhaust from the high pressure cylinder being passed to the atmosphere. The crank shaft, carried in two long bearings, is, together with the eccentrics, cut out of a solid billet, and on one end of the shaft is a pinion engaging with a gear wheel on the second motion shaft. On a squared portion, in the middle of this shaft, slide a pair of unequal pinions, either of which may be caused to engage with the corresponding gear wheels carried on the equalizing gear.

The equalizing gear shaft is the only one projecting through casing and carries a pinion at each end. A locking gear, for putting a compensating gear out of action, is provided, causing the driving wheels to revolve together. The entire gearing, which runs in an oil bath, is of cast steel, machine cut, no keys being used in the transmission gear. The compensating gear shaft is carried in long, bushed bearings and the bushings are, in turn, carried in spherical bearings, supported in steel brackets bolted to the main frame.

The method of supporting the cylinder end allows a ball and socket motion, so that the engine motion, work gearing and shaft, being entirely contained in a rigid casing, are kept in accurate mesh and alignment, this method of suspension allowing the main frame sufficient elasticity without setting up internal strains in the transmission gear. The boiler feed pump and feed water heater are also contained in this casing.

The boiler feed pump, which is worked off the end of the second motion shaft by means of an eccentric, is so constructed that it is not exposed to grit and dirt while the stuffing boxes and valve boxes are still fairly easy of access.

The road wheels are of gun carriage pattern fitted with steel hubs and bronze bushing. The felloes are of ash and the spokes of oak. The front wheels are 2 feet 9 inches in diameter, with 5-inch face. The rear wheels are 3 feet in diameter with 6½-inch face and are fitted with the Coulthard triangular drive and band brake drum whereby the drive is taken direct to the felloes. Chains are used as a means of connection between these wheels and the compensating gear shaft.

The brake arrangement consists of two steel cables lined with hard wood blocks and coiled around the brake drum. By means of a worm and wheel pressure it is applied or released at both ends of each cable simultaneously, thus securing not only a powerful brake but one that is double acting and equally efficient when running backward or forward.

The water tank is at the rear, the bulk of the weight coming directly on the back axle. The capacity of this tank, about

THE MANN TIP CART.

145 gallons, is sufficient for a run of about 15 miles under ordinary conditions. The boiler is of the vertical fire tubed type, with straight steel tubes suitable either for coal or coke. The tubes are electrically galvanized and non-corrosive. The boiler is constructed for a working pressure of 225 pounds and is tested to 450 pounds.

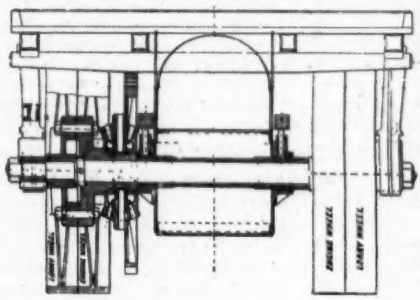
An auxiliary steam pump is provided, having a separate section from the tank and a separate delivery and check valve on the boiler. Two safety check valves are fitted to the boiler, so constructed that the check valve can be examined while the boiler is under steam and should the driver omit to open communication from feed pump to boiler, which under ordinary circumstances would mean bursting the pipes, the delivery would be discharged through a by-pass well in sight of the driver.

The general dimensions of this wagon are: Length, over all, 18 feet 5½ inches; width, 6 feet 6 inches; height, over chimney, 8 feet 8 inches.

The vehicles manufactured by Mann's Patent Steam Cart & Wagon Co., Ltd., are interesting as they are unique in type and may be described as a particularly clever blend of the traction engine and the motor van, especially when considered from a legal standpoint, which, in England, regards a traction engine as a locomotive and an automobile as a light locomotive.

In order to avoid heavy taxes placed upon locomotives and other burdensome restrictions, this company has exercised no little ingenuity. It was necessary to overcome any chance of classing the vehicle as a locomotive drawing cars or trailers. The engine itself weighs 5,800 pounds, 200 pounds inside the three ton limit set by the law, while the car, or lorry, weighs 2,100 pounds, but does not come within the trailer's restriction as it is part and parcel of the engine, yet its wheels are separate, although side by side with the driving wheels of the engine.

The approximate over-all dimensions are 13 ft. 6 in. by 6 ft. 5 in. The cart can be tipped, the load deposited where desired and then the cart brought back into position by a windlass. As stated the cart is separate from the engine and is carried on its own road wheels, which are 4 feet in diameter, with tires 5 inches wide; but they are side by side with, connected with, and rotated by the engine road wheels, which are of the same dimensions. The rear wheels of the locomotive and the wheels of the cart are bolted together, making the width of the combined tires 10 inches. The arrangement is plainly shown in the accompanying illustration.



Rear Sectional Elevation of Mann Tip Cart.

The boiler is of the locomotive type, suitable for burning coke or coal. The working pressure is 160 pounds. The lorry or freight van is 5 feet longer than the tipping part shown in the illustration and the platform is 12 feet by 6 ft. 3 in. The engine is of the horizontal compound type, the cylinders 4 inches and 6⅜ inches in diameter with a stroke of 8 inches. Two brakes are provided, one a band brake acting upon a drum on the intermediate shaft and the other upon the tires of the rear wheels. Two speed gears are provided, giving speeds of 2½ and 5 miles per hour. Both cart and lorry have a capacity of 5 tons.

ROUTE OF THE MOTOR AGE TOUR

After consultation with a great many people, the route given below has been adopted as that of the Motor Age tour to Buffalo. There will be changes, of course, as later reports of the condition of the roads come in, but in a general way the program will be followed.

In view of the fact that there will be a number of ladies in the party, an attempt has been made to keep the distances within reasonable bounds. There are a few cases where the distances between meals may seem a trifle long, but accommodations had to be considered. Of course there will be frequent stops not shown on the schedule, but of these and the reasons therefor more details will be given later. Meanwhile information relative to roads, points of interest and hotels will be gladly received.

Saturday, Aug. 31, Chicago to Laporte, Ind., 69 miles. Start from the Auditorium Hotel at 9 a. m. Hammond, 22 miles; lunch, 11:00; leave 11:30. Hessville, Glen Park, Hobart Crocker, Chesterton, 27 miles; dinner, 2:30; leave 4:30. Burdick, Otis, Durham, Laporte, 20 miles, supper. Total for the day, 69 miles.

Sunday, Sept. 1, Laporte to Ligonier, 71 miles. Start 8 a. m. Prairie, New Carlisle, Terre Coupee, Warren, South Bend, 29 miles; lunch 11:00; leave 11:30. Mishawaka, Osceola, Elkhart, 15; dinner, 1:00; leave 3:00. Dunlap, Goshen, Millersburg, Ligonier, 27 miles; supper, 6:30. Total, 140 miles.

Monday, Sept. 2, Ligonier to Napoleon, 81 miles. Start 8 a. m. Wewaka, Brimfield, Kendallville, Corunna, Sedan, Waterloo, 31 miles; lunch, 11:00; leave 12:00. Butler, Edgerton, Melbern, Bryan, 25 miles; dinner, 2:00; leave, 4:00. Glenburg, Evansport, Domerville, Napoleon, 25 miles; supper, 6:30. Total 221 miles.

Tuesday, Sept. 3, Napoleon to Toledo, 41 miles. Start 8 a. m. Grand Rapids, Bailey, Neowash, Presque Isle, Perrysburg, 31 miles; lunch, 11:00; leave 11:30. Toledo, 10 miles; dinner, 1:00. Total, 262 miles.

Wednesday, Sept. 4, Toledo to Norwalk, 64 miles. Start 9 a. m. Stoney Ridge, Lemoyne, Elmore, 24 miles; lunch, 11:30; leave, 12:00. Lindsey, Fremont, Clyde, 20 miles; dinner, 2:00; leave, 4:30. Bellevue, Monroeville, Norwalk, 20 miles; supper, 6:00. Total, 326 miles.

Thursday, Sept. 5, Norwalk to Cleveland, 55 miles. Collins, Wakeman, Kipton, Oberlin, Elyria, 30 miles; lunch, 11:00; leave, 11:30. Town Line, North Ridgeville, County Line, Olmsted, South Dover, Rock River Bridge, Cleveland, 25 miles; dinner, 2:00. Total, 381 miles.

Friday, Sept. 6, Cleveland to Conneaut, 70 miles. Case Avenue, Glenville, Coits, Collinwood, Nottingham, Noble, Wickliffe, Rush Road, Willoughby, Reynolds, Mentor, Heisley, Painesville, 32 miles; dinner, 12:00; leave, 2:00. Lane, Perry, Madison, Unionville, Geneva, Saybrook, Ashtabula, 25 miles; lunch, 4:30; leave, 5:00. Kingsville, Amboy, Conneaut, 13 miles; supper, 6:30. Total, 451 miles.

Saturday, Sept. 7, Conneaut to Dunkirk, 79 miles. Start 9 a. m. Springfield, Girard Junction, Girard, Fairview, Swanville, Erie, 30 miles ; dinner, 12:00; leave, 2:00. Wesleyville, Moorhead, North East, State Line, Ripley, Westfield, 31 miles; lunch, 4:30; leave, 5:00. Portland, Brocton, Van Buren, Dunkirk, 18 miles; supper, 6:30. Total, 530 miles.

Sunday, Sept. 8, Dunkirk to Buffalo, 41 miles. Start 9 a. m. Waite's Crossing, Silver Creek, Irving, Farnham, Angola, Derby, North East, 25 miles; lunch, 11:00; leave, 12:00. Wanakah, Bay View, West Seneca, Buffalo, 16 miles; dinner, 1:30. Total, 571 miles.

FOR AND ABOUT AUTOMOBILE CLUB MEN

BOSTON, June 17.—Perhaps there was a little disappointment on the part of the members of the Automobile Club of New England at the poor attendance of the public at the races yesterday, but as a society function it was decidedly successful, and the racing, while somewhat one-sided at times, served to interest the enthusiasts and to give them a better understanding of automobiles generally.

Nearly all of the events were five miles in length, a fact which troubled the operators of steam vehicles who had had no previous experience in handling their steam and water over so long a distance at high speed. Mr. Riker demonstrated that his electric vehicles must be taken into account in future events by capturing the final event so easily as to lap his nearest competitor. The track at the grounds of the Country Club is somewhat small for high speed, so that the times made do not represent the capacities of the vehicles. All races except the first were five miles.

The first race, for electric pleasure vehicles seating two, was two and a half miles. There were two starters, but F. E. Queeney's machine had an accident before the first mile was finished and A. L. Riker won easily.

The second race had two contestants and was for electric racers. Much interest centered about the low, truck-like electric racer which A. L. Riker had brought up from New Jersey especially for the occasion. The affair is different from any seen here, almost the entire weight of the machine being below the axles and no part being higher than the 30-inch wheels. It was operated by Adams and Alden. Pitted against it was a higher and heavier rig, made by the same company, with a greater horsepower, and in charge of Mr. Riker.

The low racer had everything its own way up to the last mile, when the larger rig began to creep up. On the bell lap they were side by side, and a victory for the high rig seemed probable, when, in rounding the curve on the home stretch, a tire was thrown off, and although Riker kept on, the low machine won by two seconds. This was one of the most interesting races of the day. The time by miles: 1:54 3-5, 1:41, 1:41, 1:41 2-5, 1:41 4-5.

The third race was for two-seated steam vehicles of stock patterns, and there were four starters. T. E. Griffin's machine took the lead and increased it to the finish, when he lapped Walter Safford, the only remaining contestant.

The fourth race, for four-seated steam vehicles, stock pattern, had two entries. T. E. Griffin finished alone in 16:9.

Much interest centered in the 40 horsepower motor which Larz Anderson had entered in the fifth race, for gasoline pleasure vehicles. There were two starters, Anderson's machine and one belonging to J. A. Robinson, Jr., and operated by him. Anderson's swift machine fairly ran away from its opponent up to the beginning of the third mile, when it suddenly stopped, and despite all efforts refused to budge, not only during that, but also the race following. Robinson consequently won in 12:31 2-5.

The judges did not award any prize in the sixth event, which was for steam racers. There were two entries, but only one of them started. Luck was against Harry Fosdick. He had been obliged to wait at the tape with steam up an unusually long time, and when the pistol was fired the sudden release blew out the water gauge. T. E. Griffin kept on alone, but on the last lap of the fifth mile his water gave out and he was obliged to stop.

The fastest time made was by Kenneth Skinner on his tricycle in the seventh race, which was for motor tricycles. There were four starters. Pete Berlo led the first mile, but from there on was distanced by Skinner and finally Sanborn. Skinner's time for the five miles was 8:30 4-5. His time by miles after the second mile was 1:41 1-5, 1:33, 1:34, 1:37 1-5.

The eighth event was also won by Skinner on a quadricycle in 9:34. H. H. Brown finished second, 6 minutes 12 seconds later. His machine was heavier than Skinner's and not built for racing.

The ninth and tenth races were nothing more than exhibitions, there being but one starter in each.

Perhaps the most interesting contest of

the lot was the last event, in which the three vehicles making the best time in the preceding races contested.. The machines selected were Riker's electric racer, Skinner's quadricycle and J. T. Robinson, Jr.'s, machine.

The Riker racer took the lead at the start and increased it throughout the entire race. At the finish it was almost three-quarters of a lap ahead of Skinner and his machine and over two laps ahead of the other. Having won the race, the electric rushed around the course once more and succeeded in lapping Skinner just as he was crossing the tape at the finish. The time by miles for the electric was 1:56, 1:40 4-5, 1:45 2-5, 1:44 2-5 and 1:38 1-5.

THE INVITATION RUN

Boston, Mass., June 16.—The Automobile Club of New England held its first road run today, and almost every type of horseless carriage made in America was in line on the road from Brookline to Marblehead. Eighteen vehicles made the run.

At the club house of the Eastern Yacht Club the automobilists sat down to luncheon and later made a tour of the old town.

BASTOGNE-NAMUR RACE

A big road race organized by the Belgian Automobile Club, and covering a distance of 220 kilometers, was run on the 2nd. There were 30 starters. Baron de Caters, with his 28 horsepower Panhard-Levassor, was the favorite. He kept the lead until 50 kilometers from the finish, when a dog ran into one of his wheels and disturbed the mechanism, thus obliging him to give up. The finish was as follows:

Vehicles of 6 to 10 horsepower and two seats:

Roland, 8 H. P. Gobron-Brillie..4:25:50
Conrard, 8 H. P. Gobron-Brillie..4:45:48
Dernier, 8 H. P. Gobron-Brillie 4:50:29 4-5
Pirmez, 9 H. P. Delahaye.....6:53:25

Vehicles of over 10 horsepower:

d'Aubreby, 12 H. P. Pipe.....4:37:34
de T'Sercleas, 12 H. P. Germain 5:28:44 3-5
Coppee, 12 H. P. Germain.....5:53

Voiturettes:

Hautvast, 6 H. P. Vivinuss.....6:18:31
Martiny, 4½ H. P. la Rhenane..6:49:40
de Smedt, 4½ H. P. DeDion....7:02:30
Francotte, 5 H. P. Duryea.....7:44:23 3-5
Joostens, 5 H. P. Peugeot.....7:54

Motocycles and tricycles:

Gaste, 6 H. P. Songin tricycle..4:26
Chisogne, 5 H. P. Clement.....5:02:41
Houa, 2¼ H. P. Antoine tricycle 5:08:03
Siersaeck, 2¼ H. P. Delin bicycle 7:26:40

Gaste had a fall on account of a dog, but was not hurt and continued, finishing the race at a speed of 50 miles an hour, and getting second place among all the vehicles after having lost 15 minutes.

In the hill-climbing contest, distance 2,800 meters graduation, Gaste covered the distance on a 6 horsepower Titan motocycle in 4:30, and Virlee, on a motor bicycle of 2¼ horsepower, in 6:35.

PACIFIC COAST NEWS

San Francisco, June 12.—The members of the Automobile Club of California are much displeased with the loose manner in which the club affairs have been conducted by the officers. The annual meeting occurs in a few days and the members say there will be a clean sweep and election of an entire new board.

George P. Moore of this city aspires to break the coast record for one mile and will make the attempt on a straightaway course as soon as possible, probably at Alameda.

C. N. Ravlin and Orlando Stevens are trying to arrange a race meet on July 4.

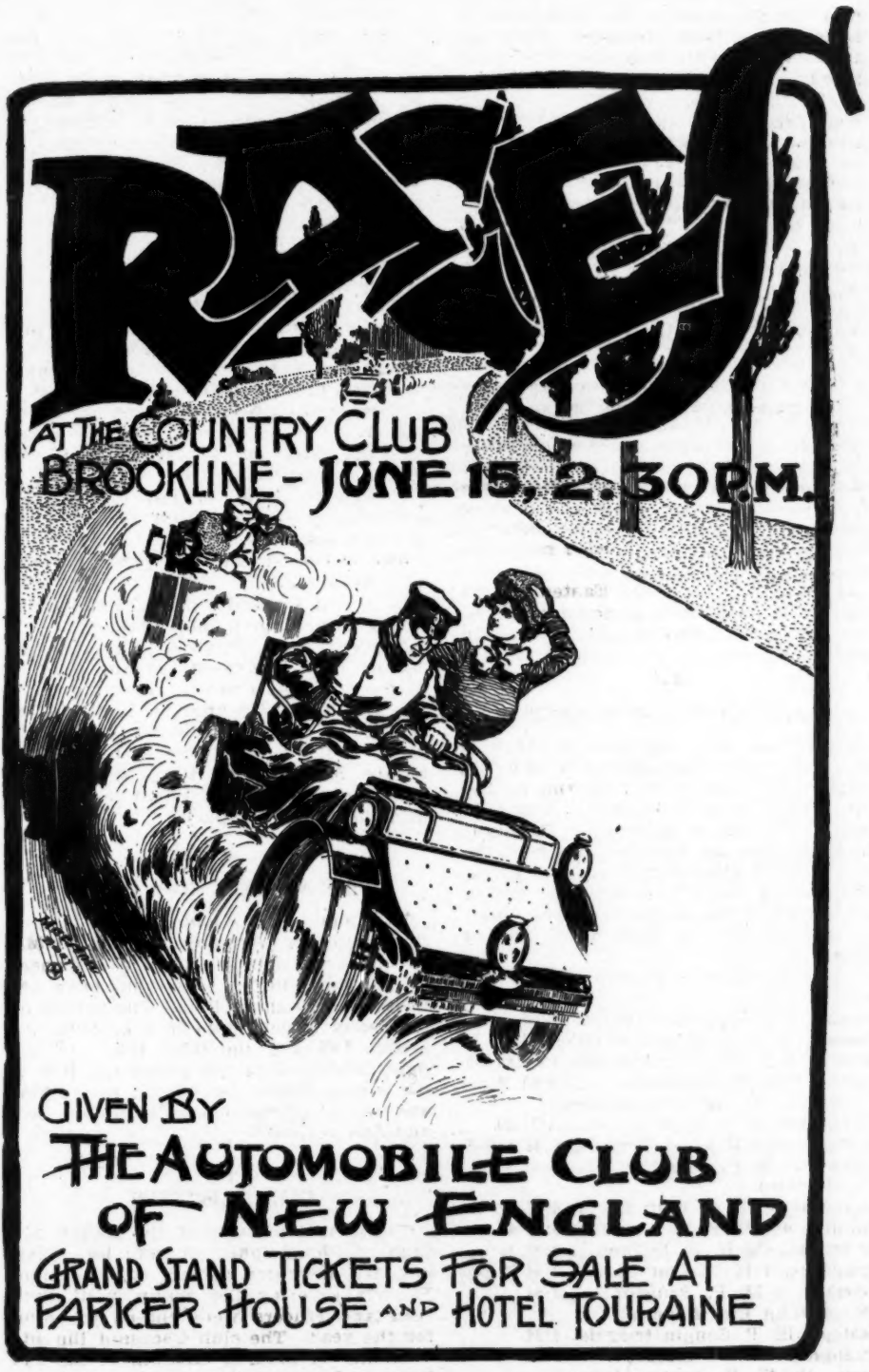
Llewellyn H. Johnson, formerly an eastern champion cyclist, is now addicted to the automobile habit. Lately he made the trip from Stockton to Lodi, a distance of 27 miles, in 1 hour and 10 minutes. His vehicle is now at the bottom of the San Joachin river, having been lost overboard from the boat on the trip back to San Francisco.

TIRE MAKERS GIVE PRIZES

The Continental Caoutchouc & Gutta Percha Co., of Germany, has offered $8,660 to be distributed among the winners of the Paris-Berlin race, who have vehicles fitted with its tires. The winner of the heavy vehicle class is to get $800, the second $400 and the third $200. In the light vehicle class the prizes are $500 to the winner, $200 to second and to the first and second of the voiturette contest $400 and $200 respectively.

CLUB ELECTION

The annual meeting of the Automobile Club of Philadelphia occurred last week and the members turned out in force. Reports covering the year's work were read and officers were chosen to serve for the year. The club discussed the advisability of making changes in the by-laws, and a resolution finally passed authorizing the board of governors to make



THE FIRST AUTOMOBILE RACE POSTER MADE IN THE UNITED STATES.

the alterations. Secretary and Treasurer Frank C. Lewin reported the club finances to be in a flourishing condition. Officers were then elected as follows: President, Herbert Lloyd; second vice-president, Pedro G. Salom; third vice-president, J. Horace Harding; secretary and treasurer, Frank C. Lewin; members of the board of governors, Captain John C. Muckle and Herbert W. Warden.

PARIS-BERLIN ENTRIES

The Paris-Berlin automobile race has closed with 154 entries in the fast and 59 in the tourists' division. Five German and one English machine will compete, the greater part of the remainder being of French manufacture.

The fast division will start on June 29, and will have three relays, namely, Aix-la-Chappelle, 459 kilometers; Hanover, 445, and Berlin, 293. Three women have entered for the contest, one of whom, the Baronne de Zuylen is the wife of the president of the automobile club. Foxhall Keene has entered with a Mors automobile.

EASTERN CLUB NOTES

Brooklyn, June 16.—There was to have been a joint run of the Automobile Club of America and the Long Island Automobile Club to Oyster Bay yesterday, but it was prevented by the rain.

The Long Island Club had an informal house warming at its new quarters at Bedford avenue and Fulton street, on Wednesday evening. These headquarters are but temporary and the members are now looking for a desirable site to establish a permanent home.

LONG ISLAND CLUB'S GROWTH

Brooklyn, June 17.—The Long Island Automobile Club, having reached a membership of over 100, found that it had outgrown its old quarters at 552 State street, and is now moving into a handsome suite of rooms, occupying the entire second floor of 1190 Fulton street, with a fine outlook on Bedford avenue. The suite consists of four rooms, a general room, library, locker room and kitchen, all handsomely and appropriately furnished. Storage and repair facilities are conveniently at hand across the street, at the station of the Brooklyn Automobile Co. There will be a house warming in a few days.

Encouraged by the success of its recent 100-mile endurance test, this hustling club proposes to hold a race meet at one of the big Brooklyn running tracks, which will be banked at the curves to admit of record-breaking speed.

Syracuse, June 17.—The Automobile Club of Syracuse has been reorganized with the following officers: President, T. D. Wilkin; vice-president, Dr. Gregory Doyle; secretary and treasurer, Fred H. Elliott. The following are the standing committee: Executive, Willett Brown, A. T. Brown, William Van Wagoner; membership, F. H. Elliott, F. W. Gridley, George M. Barnes; runs and tours, C. A. Benjamin. The club will take several runs during the season and a dinner will be served at the end of each.

"Do you know where we are now?"
"No. Guess I'd better slow down a bit so as we can see the landmarks."

THE CONSTRUCTION OF A MOTOR QUADRICYCLE

BY L. ELLIOTT BROOKES.

Part Two.

FIGURE 4 shows a side elevation of the outside of the gear case from the motor side of the former. The 2 1-8-inch hole at the right hand side, with clamping, is to receive the hub of the motor crank shaft bearing on the driving pinion side. The pinion on the end of the motor crank shaft must be 1 7-10 inches in pitch diameter, and with 3-4 inch face and have 17 teeth, No. 10 diametral pitch.

The small cap shown at the extreme right of the view, and above the 2 1-8-inch hole, is to carry the fork or yoke which controls the positive clutch by means of which the motor is thrown out of gear, or the fast or slow speed engaged, as desired.

The gear case is in two parts, is held together by means of ten 5-16-inch steel studs, with semi-finished hexagon nuts. The tapped holes for these studs are on the flange on the side of the gear case shown in this view. The holes in the flange of the other side should be 11-32 of an inch in diameter to allow a small leeway to compensate for slight inaccuracy in the drilling of the respective series of holes in the two casing sections.

A small boss is shown on the hub of the 2 1-8-inch hole. This is for a set screw, the point of which should set into the hub of the crank shaft bearing about 1-16 of an inch to properly locate the hub after the motor is in position but before the hub is clamped permanently in place by means of the 7-16-inch bolt and hexagon nut.

The lug shown at the left hand side of the gear case in Fig. 4, and on the hori-

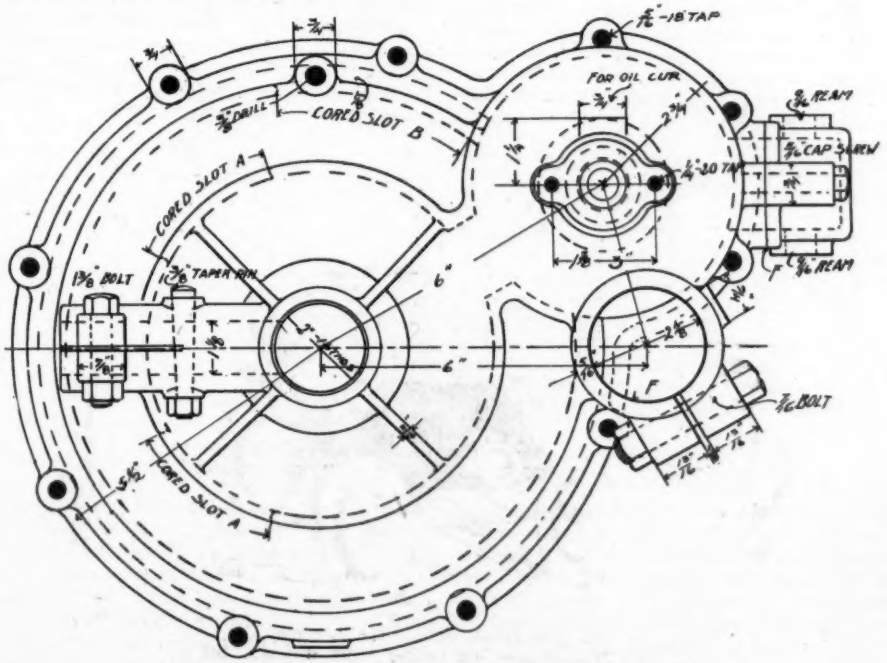


FIG. 4—SIDE ELEVATION OF GEAR CASE.

zontal center line of the main body portion of the gear case, is to receive the rear end of the lower horizontal member of the main frame, the front end of which is brazed into the rear lug of the bottom bracket. This is to be made of a piece of

The rear axle of the machine is made of 2-inch seamless steel tubing, with 1-4-inch wall. The ends of each section are threaded with 2-inch, 16 threads. The ends which screw into the gear case hubs should, after the wheel track has been

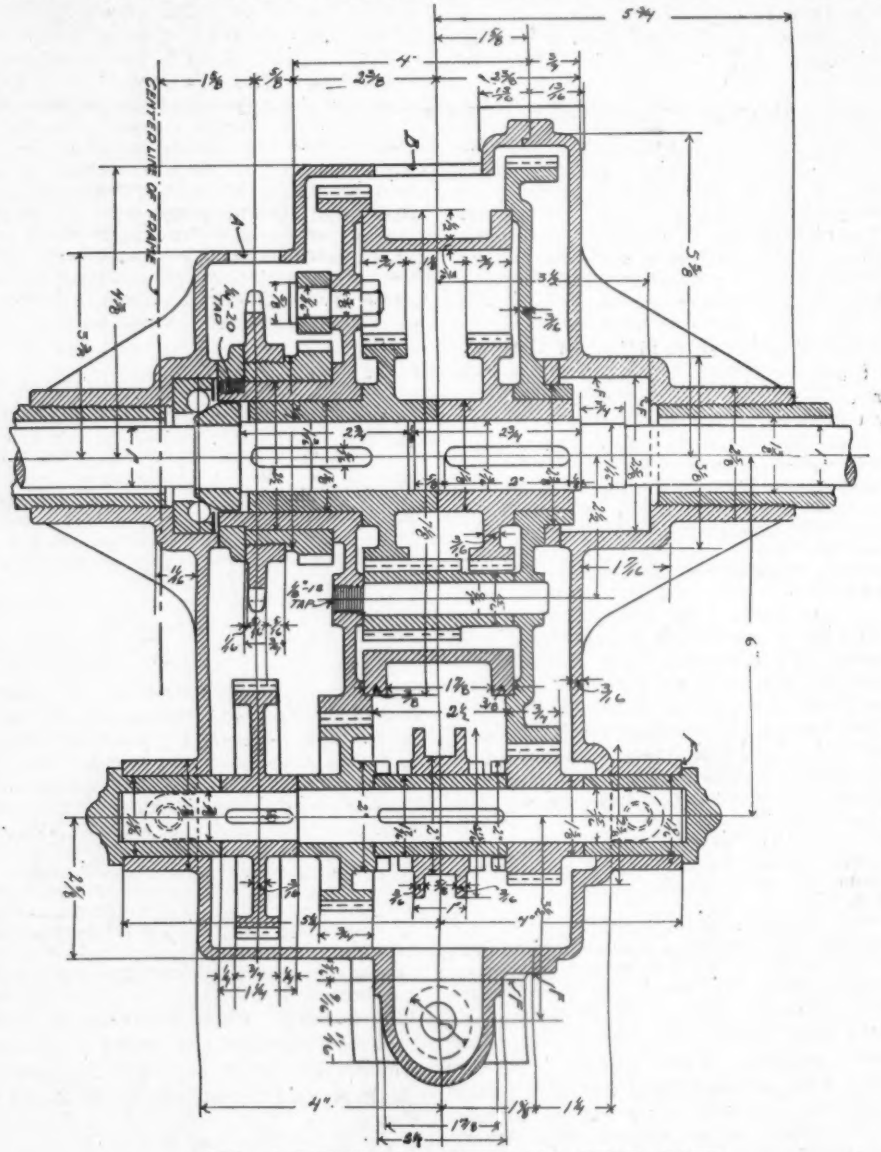


FIG. 5—SECTIONAL VIEW OF GEAR CASE.

1 1-8-inch cold drawn or rolled steel and should be a snug fit in the hole in the casing lug. The hole for the taper pin should not be drilled until the entire frame is assembled, with the 1 1-8-inch rod properly adjusted and clamped in place by means of the 3-8-inch bolt and nut shown.

determined and the frame, rear axles and gear case assembled and lined up—be brazed in place. It is not sufficient to either thread or braze; both should be done if a strong, lasting job is desired.

The ribs shown around the central hubs on the gear case, into which the rear axle sections are screwed, should

not on any account be omitted as this is the point of greatest stress in the whole machine.

Figure 5 shows a cross section through the gear case, giving clearly all the details of the differential gear; brake wheel; rear sprocket with flying pawls and ratchet wheel; clutch shaft with motor pinion gear, and change speed gears and clutches.

The differential gear comprises two spur gears of 3 6-10-inch pitch diameter. and six pinions of 1 4-10-inch pitch diameter, all No. 10 diametral pitch. The gears have 36 teeth, and the pinions 14 teeth, respectively. The spur gears which form the sides of the differential gear casing are of 9 7-10-inch and 8 8-10-inch pitch diameter, and 97 and 88 teeth respectively, and mesh with pinions upon the clutch shaft. The latter pinions are of 2 3-10 inch and 3 7-10-inch pitch diameter and 23 and 32 teeth respectively, as shown, and are all No. 10 diametral pitch.

The smaller of the two gears which form the sides of the casing of the differential gear has loose upon its hub a ratchet wheel carrying a sprocket with 18 teeth, 1-inch pitch and 5-16-inch face. The sprocket is securely attached to the ratchet wheel by being threaded upon its hub. A collar on the hub of the 8 8-10-inch gear holds the ratchet wheel and sprocket in place and is itself locked by means of two 1-4-inch by 20 thread headless set screws, tapped half in the hub and half in the collar as shown.

Six bosses are provided on the web of the 8 8-10-inch gear, three of which carry the pawls for operating the machine by means of the pedals. The other three bosses carry the studs for three of the pinions of the differential gear, the other three pinions being carried on similar studs in bosses on the larger, or 9 7-10-inch gear.

The revolving shaft sections in the rear axle of the machine are keyed, as shown, in the hubs of the 3 6-10-inch pitch diameter gears, by means of the feather keys indicated, but are free to slide in the gear hubs when the cones of the outer ball bearings—those adjacent to the wheels and at each outer end of the rear axle—are adjusted. The inner cones—those within the casing—are thus adjusted simultaneously. This method obviates any complicated arrangement of auxiliary shafts, or similar devices, as commonly used.

The 9 7-10 and 8 8-10-inch pitch diameter gears, which should be of phosphor bronze, are carried upon the hubs of the 3 6-10-inch pitch diameter gears, which are of cast steel and are free to rotate upon the latter.

The spur gear, which engages the motor pinion is on the inner end of the clutch shaft and is of 4 3-10-inch pitch diameter, with 43 teeth, No. 10 diametral pitch. It is keyed rigidly on the shaft. The clutch sleeve and the clutch itself are of annealed tool steel. The clutch has four teeth and four jaws of equal dimension, which are adapted to fit into corresponding formations on the hubs of the driving gears on the clutch shaft, as shown. The clutch sleeve is keyed rigidly to the clutch shaft, while the clutch proper is free to move lengthwise upon a feather in the sleeve. The 2 3-10 and 3 2-10-inch pitch diameter, driving gears, are, of course, free to rotate upon the clutch shaft, except when engaged by the clutch. The bushings which form the bearings for the clutch shaft should be of phosphor bronze and with closed ends—as shown.

Figure 6 shows the one outer end of the rear axle, with cup and cone, rotating shaft and hub of rear wheel. The center or inner ends of the rotating shafts are carried by cups and cones with 3-8-inch balls, as shown in Fig. 5, and the outer ends by cups and cones with 7-16-inch balls. The lug which receives the end of one of the rear stay tubes of the frame is also clearly shown in Fig. 6. The construction of these end or outer bearings needs no detailed explanation.

The construction of the carbureter, with the exception of the connection at the motor crank chamber, is clearly shown in Fig. 1—presented in the last issue. It is necesary to locate somewhere upon the crank chamber a place to conveniently drill and tap for 1-2-inch pipe threads, preferably on the side of the chamber. Into this hole must be screwed a 1-2-inch pipe nipple about 1 1-4 inches long. On the outer end of this is screwed a 1-2-inch brass or malleable iron tee with its long branch in a vertical position. To the lower and tapped end of the long branch is attached a 1-2-inch vertical check valve, and in the upper end of the tee branch is screwed a 1-2-inch by 3-8-inch bushing. From this bushing, carry up a 3-8-inch brass pipe to the carbureter. Another 3-8-inch check valve is placed in this pipe near the carbureter, as shown in Fig. 1.

This construction makes a pump out of the crank chamber, which forces a regular supply of air under a slight pressure, to the pipe in the carburetting tank. The supply can be regulated at will by the valve on the top of the carbureter, and mixed with a greater or less supply of air from the outside, as the conditions may require, by manipulating the con-

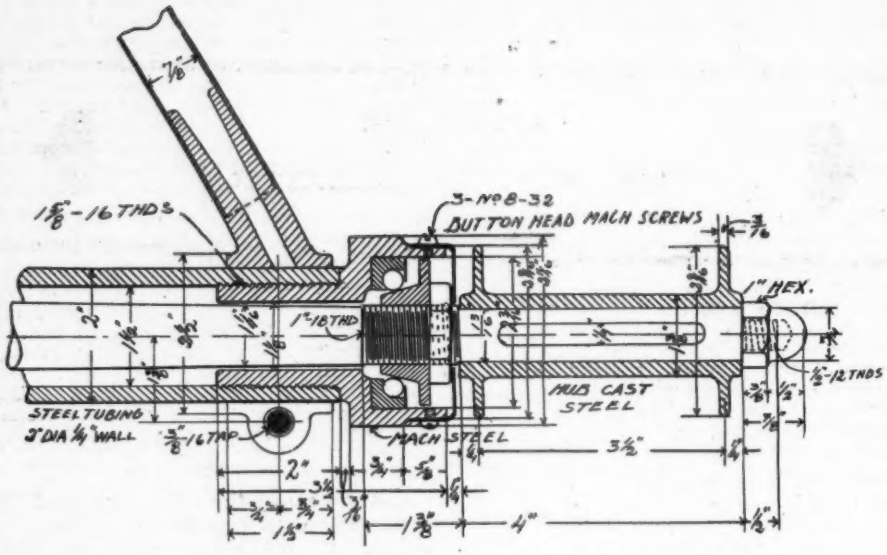


FIG. 6—SECTIONAL VIEW OF END OF REAR AXLE.

trolling valves. A check valve is shown at the outside air inlet, which should be 1-2-inch also, and should not be omitted, as it removes the elements or danger and liability of odor so common to the forms of surface carbureters principally in use. The tank is entirely sealed by this check and no vapor can escape from the tank when the motor is at rest. When it is desired to drive the machine by the pedals only, and the motor is thrown out of gear, some one of the three pawls around the ratchet wheel will be in mesh or engaged with the latter. The other two are out of mesh and resting against their stop pins, which allow them to be fully 1-8 of an inch out of engagement with the ratchet wheel. When in starting the motor by the pedals with the clutch thrown into mesh as soon as the motor gets under way the pawls run away from the teeth of the ratchet wheel and centrifugal tendency keeps them out of mesh and against their stop pins as long as the motor is running. By locking the forward end of the clutch operating rod in the central position in the quadrant, as shown in Fig. 1, the motor is not only disconnected but the clutch remains inoperative and the brake can be applied while the rider is driving the machine with the pedals, as releasing or applying the brake does not then throw the clutch into or out of gear.

In concluding the description of the construction of this quad without giving detailed instruction concerning the making and assembling of the parts at the front of the machine and of such factors as controlling levers and their connections it is taken for granted that the builder by studying the drawings of the complete machine and exercising his own judgment in accordance with common practice will be able to proceed without the slightest difficulty.

NEWS OF THE MOTOR INDUSTRY

LIMITS WEIGHT OF CARS

So far as France is concerned the giant racing machine seems to be doomed to obliteration. The Paris-Berlin event is likely to be the last in which ponderous vehicles will be permitted to compete. The sporting committee of the Automobile Club of France decided, at its last meeting to place a limit of 1,982 pounds on vehicles competing in races in 1902. In augmenting the power of the motor, makers have been obliged, says the Autocar, to build heavier vehicles, until the cars of 75 horsepower now turned out weigh something like 3,350 pounds. This weight cannot be increased indefinitely, for, apart from the difficulty, if not the impossibility, of augmenting the speed in proportion to the power of the motor, the weight is limited by the durability of the pneumatic tires, and, notwithstanding the progress that has been made in the construction of tires, it is not easy to see how they can be made to support the weight and strains of these mastodons running at high speeds. At one time it would scarcely have been deemed possible to use air tires on vehicles weighing a ton, but they are now fitted to cars weighing half as much again, and it will be interesting to see how they will behave in the forthcoming races.

This question of weight, however, presents less difficulty even that the safe driving of cars at much beyond the speeds now usually attained in autocar contests. Some makers say that their vehicles will run at the rate of 75 miles an hour on the level, but is there anyone who will be able to drive them at this speed? One of the most experienced racing autocarists recently stated that it would be impossible to take full advantage of the high powers put into some of the newest vehicles. The mental and nervous strain in driving a car at 60 miles an hour is enormous, and when it comes to speeds of 75 miles, even the most hardened driver is unable to keep it up for more than a minute or so. Panhard and Levassor are of the opinion that the speed is limited by the capacity of the driver more than by anything else, and they have therefore not carried out any considerable changes in their new racing cars, except to increase the speed with their ordinary type of four-cylinder motor.

Having now reached a point when weight and engine power seem to have introduced an element of danger, and in any event have increased the liability of tire accidents, which may have serious consequences when traveling at such high speeds, the automobile club has done wisely in limiting the weight of racing vehicles. This will have the effect of stimulating improvements in other directions, which must have much better results for autocar construction generally than the mere increase of power.

By finding themselves limited to weight, makers may very well continue to augment the power of their engines, but they will have to seek some other means of increasing the adhesion without building heavier vehicles. In France too much attention is, perhaps, given to the trouble arising from insufficient adhesion of the driving wheels on the surface of the road.

It is customary to consider it from the same point of view as the locomotive, and argue that if the weight of the locomotive has to be augmented for adhesion with an increase of power, the same thing is necessary for the autocar. But the conditions are not similar. The autocar does not run on smooth rails which are very slippery in wet or frosty weather, and the asperities of the road exert enormous friction against the wheels when traveling at high speeds. Still, a point must certainly be reached when there is not sufficient adherence for a high-powered motor, especially when running on wet roads, and if makers cannot increase the weight they propose to distribute the motive power equally over the four wheels.

The Auto-Velo states that the Societe Mors and the Daimler Co., of Germany, are both designing vehicles within the limit of weight prescribed by the automobile club, and are making all four wheels drivers. It seems as if it is to be a combination of the petrol motor and the

electric motor, and as the Mors people are, to a certain extent, interested in the petrol-electric car of Jenatzy, we assume that they are working upon this system. It is therefore very probable that the autocar will soon be entering upon another interesting stage of development.

ANNUAL NEW YORK SHOW

The second annual exhibition of the Automobile Club of America will be held at Madison Square Garden from November 2 to 10 inclusive.

PITTSBURG DELIVERY WAGON

Seven electric delivery wagons are in process of construction for Pittsburg business men. A few of them have two sets of batteries. One firm which sends a wagon with a load of 2,500 pounds, to East Liberty four times a day, finds that the wagon does more than the work of four horses.

The trip can be made in 40 minutes, and while the unloading is taking place the storage battery is recharged. As soon as the wagon gets back a fresh battery is put in and the rig started again.

TRIUMPH FOR ELECTRICITY

If the latest story from Paris proves to be true electricity has scored an extraordinary triumph. According to the story M. Kriger, a well-known manufacturer of automobiles, recently broke the record from Paris to Nantes and return, previously established by M. Garcin, covering the 144 kilometers 9 meters in 6 hours 47 minutes 2 seconds. This alone is a fine performance, but the fact that the journey was made with one charge of batteries is worth placing on record.

PATEE'S NARROW ESCAPE

Last Saturday afternoon, at Indianapolis, Fred Patee had a narrow escape. He was riding along a narrow path between a row of shade trees and a six-foot fence at 20 miles an hour, when, without a moment's warning, a big dog weighing fully 100 pounds, came sailing over the fence and landed squarely on the handle bar of the machine. His body swung against the front wheel, turning it from the path just enough to cause it to strike a tree, head on and at full speed. Patee's presence of mind in dodging the tree probably saved his life. He escaped without further injury than a couple of badly skinned legs and a bruised arm. The dog will never cause another accident, for he has gone to the happy hunting ground where fleas toil not, nor motor bicycles spin. The motor cycle was uninjured except the stripping of the thread on the handle bar binding bolt.

NEW PEOPLE MAKE GREAT CLAIMS

The Pennsylvania Steam Vehicle Co., of Carlisle, Pa., sends an announcement to appear in the advertising department of this issue, and an article for publication in the reading columns, which makes such extraordinary claims as to warrant the omission of both pending inquiry into the merits of the devices to be marketed. If the company is able to substantiate the claims made there will be some extraordinary changes in the automobile business. The president is a well-known business man of Carlisle, but nothing is known of the other gentlemen connected with the company. The capital of the concern, which has just been incorporated, is $2,500,000.

SOMETHING FOR NOTHING

Walter Scott Stowger, of Rochester, is another inventor who alleges he has broken all records in the production of storage battery. Here are some of the claims made in a report concerning the invention which will strike the average electrician as a bit romantic:

Strowger's battery can be charged to an ampereage so tremendous in power that it would melt other storage batteries. He also has invented, to go with this battery, a substance to take the place of the India rubber casing, which is superior to rubber for the purpose, and is 90 per cent cheaper and more desirable.

It is sufficient in point of illustration as to the value of this invention to say that Mr. Strowger stands ready to take the Empire Express train from Rochester to New York by his battery and system of electric power over the New York Central Railroad. He says his battery takes only half an hour to charge. He has discovered a new gas, similar in illuminating power to acetylene, but without its dangerous qualities, which is made out of the simplest materials, the residue of which, when made on a large scale, is of more value than the gas itself, the proceeds from the sale of which will defray all the expenses of manufacture.

OBJECTS TO ASSESSMENT

New York, June 16.—Benjamin Meyer objects to paying an assessment levied on his stock by the directors of the New York Electrical Vehicle Co. He has filed

a bill asking that they be restrained from collecting it. The bill says there are 250,000 shares of common stock, of a par value of $100 each. All have been issued to subscribers, who have paid in $10 a share, or $2,500,000. The company is one of several concerns organized by the Electric Vehicle Co. of America, says the bill.

On May 7 last, the bill continues, notices of the assessment were sent to stockholders. On that date a circular was issued in which it was related that the directors deemed it wise to make further provision for better establishing the business and for meeting of future requirements, such as adopting a new type of battery.

Under the assessment, the bill declares, the stockholders will be compelled to pay in $2,500,000, which is not needed "for any lawful purpose, but which your orator believes is to be used to further the individual ends of the majority stockholders." If this assessment is met there will still remain unpaid $80 on each share of the capital stock, "making $20,000,000, which your orator believes will be called by the company in a short time, and without regard to the needs of the company for the same."

A RAILROAD AUTOMOBILE

The railroad minister of Austria has ordered of Bierenz & Co., of Vienna, an automobile railroad car, of the shape of an ordinary third class railroad carriage and with seating capacity for 32 persons, as well as standing room for others. It will be propelled by a four-cylinder, 30 horsepower gasoline motor, will travel 40 miles an hour and will carry enough gasoline to run it 10 hours. The car may be operated from either end. In the winter time the water used for cooling the motor will be used to heat the car.

INDIANA IS PROLIFIC

Anderson, Ind., June 17.—The Anderson Steam Carriage Co. has just completed its first vehicle.

The Lambert Gas & Gasoline Engine Co. has nearly completed its first machine and is negotiating for a plant in Ohio. A Mr. Lee, in partnership with another person whose name he does not care to mention, will commence to manufacture in about two weeks.

WESTERN DURYEA COMPANY

The Western Duryea Mfg. Co. has been organized at Los Angeles, Cal., with capital of $500,000 to manufacture all sorts of high-class automobiles. O. C. Duryea, a son of Charles E. Duryea, will be the superintendent of the plant, and Irving Knight secretary. J. R. Newberry, of Los Angeles, has placed an order with the new company for 10 of its vehicles, which will doubtless be of the gasoline type.

LIGHT ON THE WATER

Grout Bros. Automobile Co., Orange, Mass., utilizes a unique idea in the illumination of the water glass. An extra lamp bracket is attached to the carriage, low on the side where it will best serve the purpose, and to this a lamp is lowered, when necessary, which throws

a light full upon and through the water glass.

Not wishing to monopolize a good thing the company presents the idea to the public with its compliments.

NEW ONES AT INDIANAPOLIS

Indianapolis, Ind., June 17.—The Perfect Automobile Burner Co. is interested in the formation of a new company here to make complete vehicles. It is understood that the old company will be absorbed by the new.

In conjunction with the Mohawk Cycle Co., Carl J. Fisher & Co., well-known dealers in cycles and automobiles, will commence the manufacture of motor bicycles.

CHIEF WANTS AUTOS

St. Louis, Mo., June 17.—Fire Chief Swigley is giving his leisure moments to consideration of plans for making the St. Louis fire department a dignified and creditable part of Louisiana purchase exposition. His most striking idea is to have a fully equipped automobile depart-

ment. He believes that the cost of equipping the special department for the exposition in this manner will not be excessive.

COULD USE SOME MOTORS

Mr. Mason, of the Snecker Boat Co., Greenwich, Conn., has had trouble getting motors ready for his company's boats, the demand being greater than the supply. It is possible that Mr. Mason's company can use some good marine motors if they are of the right build. Recently a representative of this paper was shown over the company's pretty plant at Greenwich and Mr. Mason pointed to one of the company's 2½ horsepower motors that supplies power for the machine shop. It had worked splendidly, he said, for nearly a year.

MONEY FOR CREDITORS

When the Soudan Mfg. Co., which made cycles at Elkhart, Ind., went to the wall there was a mortgage on the machinery and tools of $12,000. The trustee came to the conclusion that it had been given after the company became insolvent and sought to have it set aside. In this he has been successful. The mortgage was declared null and void last week and the creditors are expected to profit to the extent of about 25 per cent on their claims in consequence.

It appears that the report that Ed. Orr, who has so long and so ably represented the Shelby Tube Co. in the west, would locate permanently in New York as a result of the recent organization of an automobile department of the company, is not true. Orr will divide his time about equally between New York and Chicago. He will have an office in each city.

The Admiral Lamp Co. has moved from Columbus, O., to its new factory at Marysville. The business of the concern outgrew the old quarters and forced it to seek increased accommodations. The new place was built especially for the company. Several new lamps will be added to the old line.

The Essex Automobile Co., capital $125,000, will make automobiles at Kittery, Me.—that is to say, it has been organized for that purpose, though none of the capital has yet been paid in. Levi M. Hall, of Haverhill, Mass., is president and Horace Mitchell, of Kittery, treasurer.

Gustav Whitehead, of Bridgeport, Conn., thinks he has invented a combined automobile and flying machine. It is designed to run along the ground on wheels until it gains sufficient momentum to rise, when the propellers are to be set in motion—and there you are.

L. T. Grant, of the Honolulu Automobile Co., is somewhere in this country on a purchasing trip. The company has a handsome power house and stable in which it keeps 23 electric vehicles for hire. Mr. Grant is after batteries of greater capacity than those now in use.

J. H. Sager, designer of the Regas motor bicycle frame and organizer of the Regas Vehicle Co., is having 100 motor bicycles made for him by the Riggs-Spencer company, of Rochester, and says they will be on the market in a few weeks.

The National Cement & Rubber Co., of Toledo, has purchased the plant, stock, good-will and registered trade-mark of the Excelsior Cement Co., of Westfield, Mass., and hereafter all orders will be filled from the Toledo factory.

With $500,000 behind it, the R. S. Brine Transportation Co. has been organized to carry on a general teaming business in New York and will use motor vehicles among others. The directors are nearly all Boston men.

Swift & Derrick, who have made an automobile at Sterling, Ill., and contemplate the formation of a company to make more, are negotiating with the Keystone Mfg. Co. for room for the purpose.

It is alleged that a company is forming in Chicago to conduct a stage line on the north side. None of the projectors are willing to be mentioned in connection with the matter, however.

The Pennsylvania Steam Vehicle Co. has been organized at Carlisle, Pa., with no less than $2,500,000 capital. J. W. Plank is its president and G. E. Mills secretary.

H. M. Wells, who was assistant superintendent of the Locomobile company, has resigned and may join a well-known steam carriage making concern shortly.

The store of Patrick A. Powers, a cycle dealer at Buffalo, was entered by burglars last week. All they obtained was $50.

Chase & Ticknor, cycle dealers of Rockford, Ill., have dissolved partnership. Ticknor will continue the business.

Edwin Brown, of Brown Bros., Clinton and Jackson streets, is now the Chicago agent of the Winton company.

City Electrician Ellicott, of Chicago, is experimenting with a storage battery.

IN THE WORLD OF INVENTION

TWO A. B. C. PATENTS

The American Bicycle Co. is the assignee of two of this week's issue from the patent office, both relating to automobile construction and issued to Frederic C. Billings, well known in connection with the firm of Billings & Spencer, and the designer of the original of the Toledo steam carriage.

Letters patent No. 675,115, dated June 11, 1901; to Frederic C. Billings, of Hartford, Conn. See illustration No. 1.

This applies to running gears and particularly to the matter of flexible joints in that type of running gear frame popularly used in steam carriages. These frames are generally composed of tubular side bars, or reach rods, and tubular driving and steering axles to which the side bars are rigidly connected. As such frames are more or less flexible, the rigid connections are liable to breakage. The object of this invention is to provide a connection whereby a yielding joint will be obtained, allowing the side bars to adjust themselves to the strains incident to the movements of the wheels on uneven surfaces. A further object is the provision of a sectional reach, and of means in the nature of a yielding joint in connection with the axle.

The result is obtained by the provision of a bolt of peculiar construction for connecting the sections of each reach, this bolt being adapted to receive an eye, connected to a brace rod leading to the forward or steering axle. As may be seen from the drawing which illustrates the forward end of one of these reaches, the joint therein and the brace rod leading to the axle, each reach, or side bar, is formed of two sections, one secured at the rear end in a suitable sleeve projecting from the axle, and the other or forward end being attached to a similar sleeve projecting from the steering axle. These sections are so connected that when subjected to torsional action each will have a slight movement around the device connecting these sections. The principal member of this joint is the before-mentioned bolt, shown separately in the illustration, having a reduced portion with a tenon at one end, and a large circular portion or collar, a hexagonal or other form for receiving a wrench and a reduced portion threaded, at the other. Mounted for free rotative movement upon the reduced portion of the bolt and secured thereon by a washer held in place by upsetting the tenon, is an externally threaded sleeve, also having an angular head. The threaded portion of said sleeve is adapted to insertion in an internally threaded portion of the rear section of the reach. An internally threaded sleeve, having a smooth periphery, is inserted and secured by brazing, or otherwise, in the bore of the forward reach section and into this is screwed the threaded end of the connecting bolt, thus joining the two sections of the reach, but still leaving a rotatable joint. Before making this connection the screw is placed in the eye of the forward brace rod, thus serving as a connection between that and the reach.

Patent No. 676,116, dated June 11, 1901, also issued to Frederic C. Billings, is devoted to a flexible connection between that portion of the steering device attached to the vehicle body and the portion directly connected to the front axle. The character of this connection is so clearly shown in illustration No. 2, that little description is necessary. Two arms, so hinged so as to allow of vertical motion, are attached to the manually controlled lever and the steering gear respectively. Between these two arms is a universal joint which will allow motion in every direction, but when the upper arm is moved in a horizontal plane the lower one, connected to the steering knuckles in the usual way, will be compelled to move with it, thus transmitting the action from the hand lever to the wheel.

DRIVING MECHANISM SUPPORT

Letters patent No. 676,223, dated June 11, 1901; to Leonard Huntress Dyer, of Washington, D. C., assignor of one-quarter to Frank L. Dyer, of Montclair, N. J. See illustration No. 3.

While considerable attention is given

to details the gist of this device lies in the arrangement of the parts of the driving mechanism of a motor vehicle with the object of appending the various portions of the power mechanism to a single shaft, or as it is termed in the patent, "bridge," which is in turn suspended from the side bars or reaches of the running gear frame. The illustration shows an exterior view of the arrangement wherein the source of power is a gasoline or other internal combustion engine. Generally speaking, the invention consists in providing a suitable frame work which may or may not be tubular, having cross members and fore and aft members suitably connected.

To the fore and aft members or reaches is removably attached the rigid, unyielding bridge, which preferably carries the concentrically mounted counter shaft and differential gear. Suitable connections are made between this countershaft and the driving wheels of the vehicle. Upon the bridge, and rigidly connected thereto, is the engine or motor and its generative appliances. The inventor shows an odd idea of comparative sizes when he states that if a steam engine is used the boiler may take up the space, which, in the case of an internal combustion engine, will be occupied by the carbureter and the reserve water tank that occupied by the muffler.

JACKSON'S SPEED GEAR

Letters patent No. 676,040, dated June 11, 1901; to Ralph Jackson, of Altringham, England. See illustration No. 5.

This relates to a differential speed gear, interposed between the motor and driving wheels of a self propelled vehicle. A countershaft is used on which is rigidly mounted a sprocket wheel, driven by the motor. Two smaller sprockets are freely mounted on the shaft, one each side of the sprocket first mentioned. Pinned to these small sprockets are friction disks which fit in corresponding recesses in the sides of the larger wheel. Freely mounted beside each of the small wheels are collars formed with a coned outer surface and adjustably screwed upon the ends of the shaft are other collars, also with a coned surface, the adjacent coned surfaces of these two collars forming a V shaped race for a series of balls. Covering these ball races, and arranged to slide on the fast and loose collars, are sleeves whose internal surfaces are partly cylindrical and partly conical. These sleeves are moved to and fro over the ball races by suitable yokes operated by a hand lever. The effect of moving a sleeve over a ball race is that its coned surface gradually forces the balls into the V shaped race between the abutting cone surfaces of the collars. The free collar, the sprocket wheel and its friction disk are thus pushed in an axial direction toward, and the friction disk is forced against the rigidly attached sprocket wheel. Continued movement of the sleeve serves to lock the balls with the result that the small sprocket wheel, on the side where this action takes place, is frictionally locked to the rigidly attached wheel. A differential speed gear is thus arranged which, besides providing for different speeds, permits of the shaft being thrown out of gear with the driving wheel, allowing it to run idly without a load upon it, thus allowing the motor to run free.

TUBULAR FRAME CAR

Letters patent No. 675,876, dated June 11, 1901; to James C. Anderson, of Highland Park, Ill. See illustration No. 4.

If Mr. Anderson continues at his present rate of invention he will some day be known as the best patron of patent attorneys in the United States. His latest contribution to their welfare was in consideration of a patent covering a three-wheeled street car or motor passenger vehicle, the principal feature of which is a frame of tubular construction. The subject matter is first devoted to enumerating the faults and follies of present-day construction, laying particular stress on excessive weight. Having done so, Mr. Anderson states that his invention has for its especial object to so construct a vehicle as to overcome the enumerated disadvantages in this class of vehicle and to provide one which shall be light of construction and sufficiently strong. The accompanying illustration of the frame work of his car is sufficient to show the general idea of the design.

TO OFF-SET CAR TRACKS

Letters patent No. 676,368, dated June 11, 1901; to John Patrick, of Chicago, Ill. See illustration No. 6.

When a vehicle is provided with the ordinary rubber tired wheels now in use it is difficult to turn out from a car track, as the edge of the wheel is liable to slide for a considerable distance before the turn can be made, and this sliding wears the confining parts of the tire and turns a sharp edge in so as to mutilate the rubber and eventually irreparably injure it. The object of this invention is to obviate this trouble. In the construction shown a channel is made of iron or other suitable material and acts as a confining device for the rubber tire. This channel is preferably of

V shape, into which the rubber fits and is held in position by the usual binding wire or other device. Extending around the channel is a projecting edge which extends beyond the inner side of the flange and in such manner that in turning out of the car track this projection bears on the flange of the rail, thus materially aiding the lifting of the wheel from the track. A modification is also shown, having a double groove permitting the use of a larger tire on heavy vehicles.

REVERSIBLE CYCLE FRAME

Letters patent No. 676,003, dated June 11, 1901; to Lazarus S. Kallajian, of Boston, Mass. See illustration No. 7.

In a contest for the honor of being the star freak of the year this invention has certainly strong claims for consideration. It relates to a bicycle which, when Percy has finished with it, may turned upside down, inside out, and otherwise reconstructed and be joyfully ridden by Gladys. The illustration shown is not a puzzle as to which way the machine is going, but shows this wonderful reversible, convertible, turned-upside-down and inside-outable bicycle in the position to be ridden by the genus homo. When to be used by the weaker sex the head is taken out and turned upside down. The crank hanger, which is detachable, is removed from its present position to that now occupied by the seat post and the seat post similarly transposed. If you have a little spare time, look at the illustration and figure out what you get. If you think you want one, no doubt the gentleman with the euphonious name will be glad to hear from you.

IRON CLAD TIRE

Letters patent No. 676,395, dated June 11, 1901; to Mark A. Heath, of Providence, R. I. See illustration No. 10.

The object is full of partial protection against punctures. The device consists of a continuous thin corrugated annular lining of sheet metal in combination with the usual single tube tire mounted within and conforming to the curvature of the tube, its form, cross sectionally, being substantially U shaped, and an oppositely arranged annular lining member, having its sides adapted to bear against the adjacent surfaces of the end portion of two yielding lateral sides of the other lining member, whereby the movements of the latter, when in use, are maintained within fixed limits. As set forth in the description of this device, it is merely an arrangement inserted within a tire which it is presumed will hold the tire in nearly its normal form after puncture has occurred. What the effect would be on the running qualities of the tire when in its normal condition are apparently not considered, and it is hardly probable that the device will meet with any great degree of favor.

SECTIONAL TIRE

Letters patent No. 675,913, dated June 11, 1901; to George W. White, of Huntsville, Ala. See illustration No. 9.

Here is another form of pneumatic tire, the air chamber of which is made up of separate compartments, one of which may be used separately or all in conjunction. As described, it consists of five separate tubes, each continuing around the tire, and it is advised that the adjoining walls of the various tubes be cemented together, thus making up an air chamber of five distinct compartments but all joined into a single cellular tube. Inflation is provided for by a single valve stem, from which lead very thin rubber tubes to each of the various compartments. These tubes are flattened for a short distance at the ends inserted in the air compartments, producing a short longitudinal slit in the place of a cylindrical opening, with the idea that the air pressure within the tire will still further flatten this tube and prevent the efflux of air from the compartment. In other words, it is practically the same as the old Tillinghast valve in use some years ago. The tubes are so arranged in the valve stem that on applying the pump air is admitted into all of the compartments. In order to deflate, quickly, any of the tubes which may have sustained a puncture, a small outlet valve is provided for each separate compartment and as these tubes run longitudinally around the tire it is supposed that from the location of the puncture in the outer casing it may be readily decerned which particular compartment has suffered.

A SPRING SADDLE

Letters patent No. 676,021, dated June 11, 1901; to A. R. Anthony and C. T. Cunnius, of Wilkesbarre, Pa.

This patent covers a spring arrangement to be inserted between the seat post and the saddle, the saddle being attached to a lug on the upper part of the device by the same means and in the same manner as it is ordinarily attached to the seat post. The device shown is a somewhat complicated affair of ball bearings, spiral springs and a considerable amount of frame work. As shown in the drawings accompanying the pat-

ent it is used in connection with a hard saddle of racing pattern, and it is difficult to see where the device is in any way superior to any number of spring frame saddles now on the market. It would be much more expensive of construction and apparently liable to get out of order.

TWO SPEED GEAR

Letters patent No. 676,051, dated June 11, 1901; to Boyd Sinclair, of Waterloo, England. See illustration No. 8.

This consists primarily of two sprockets, differing in size, freely running on ball bearings at either end of the crank shaft, and a centrally located clutch on the crank shaft, which is splined thereto so as to allow of longitudinal action on the shaft. The frame of the bicycle is so constructed that the bearings of the crank shaft are located in the yoke instead of the usual form of bracket, and are outside of the two sprockets mentioned. A system of levers is provided, so that the clutch may be moved from side to side, thus rigidly connecting either sprocket with the shaft as may be desired, or, if located in central position, allowing both of them to run free on the shaft.

SPRING HANDLE BAR

Letters patent No. 675,927, dated June 11, 1901; to John K. Boehm and Charles R. Waldron, of Ceylon, O. See illustration No. 11.

A glance at this patent carries one back to the days of the solid tire, as it is designed to overcome the jar and vibration resulting from an uneven road surface, a function which is supposed to be assumed by the pneumatic tire.

The described construction includes a tubular stem having an annular hollow head in the form of a casing, provided on one side with a removable cover plate and openings are formed in the sides of this casing through which pass the two sections of the handle bar. At the sides of these openings are arcuate flanges and between these flanges are seated the annular bearing portions at the inner ends of the handle bar sections, these portions having perforations to receive the pivot screws upon which the sections are mounted, and which also serve to hold the cover plate in position. At the inner ends of the sections are segmental gears which engage a rack-bar, the lower end of which is reduced and extends downwardly into the handle bar stem. The reduction of the lower end of the rack-bar results in the formation of a shoulder which, striking the edge of the tubular extension, limits the downward movement of the rack-bar, while the upward movement is limited by the upper end thereof coming in contact with the upper side of the casing.

The lower end of the rack-bar is provided with a threaded socket into which is engaged the threaded end of a rod which projects downwardly and out through the stem, and on this rod is disposed a helical spring which bears at its upper end against the extension of the casing, while at its lower end it bears against an adjusting nut on the rod. This construction, it will be seen, gives a vertical movement to the handles, the freedom of which is limited by the spring.

Letters patent No. 675,696, dated June 4, 1901; to William F. Williams, of London, England. Means for securing cushion rubber tires to channel rims.

PATENTS EXPIRED

The following lists are furnished by Davis & Davis, solicitors of American and foreign patents, Washington, D. C., and St. Paul Building, New York City:

The following patents expired June 17, 1901:

300,359. Tricycle, John Gowdey, Janesville, Wis.

300,516. Velocipede, E. R. Settle, Coventry, England.

300,544. Ball-bearing for velocipedes, J. White, Coventry, England.

300,261. Brake-lock for bicycles, G. S. Hull & C. S. Hull, Chambersburg, Pa.

AN APPEAL REFUSED

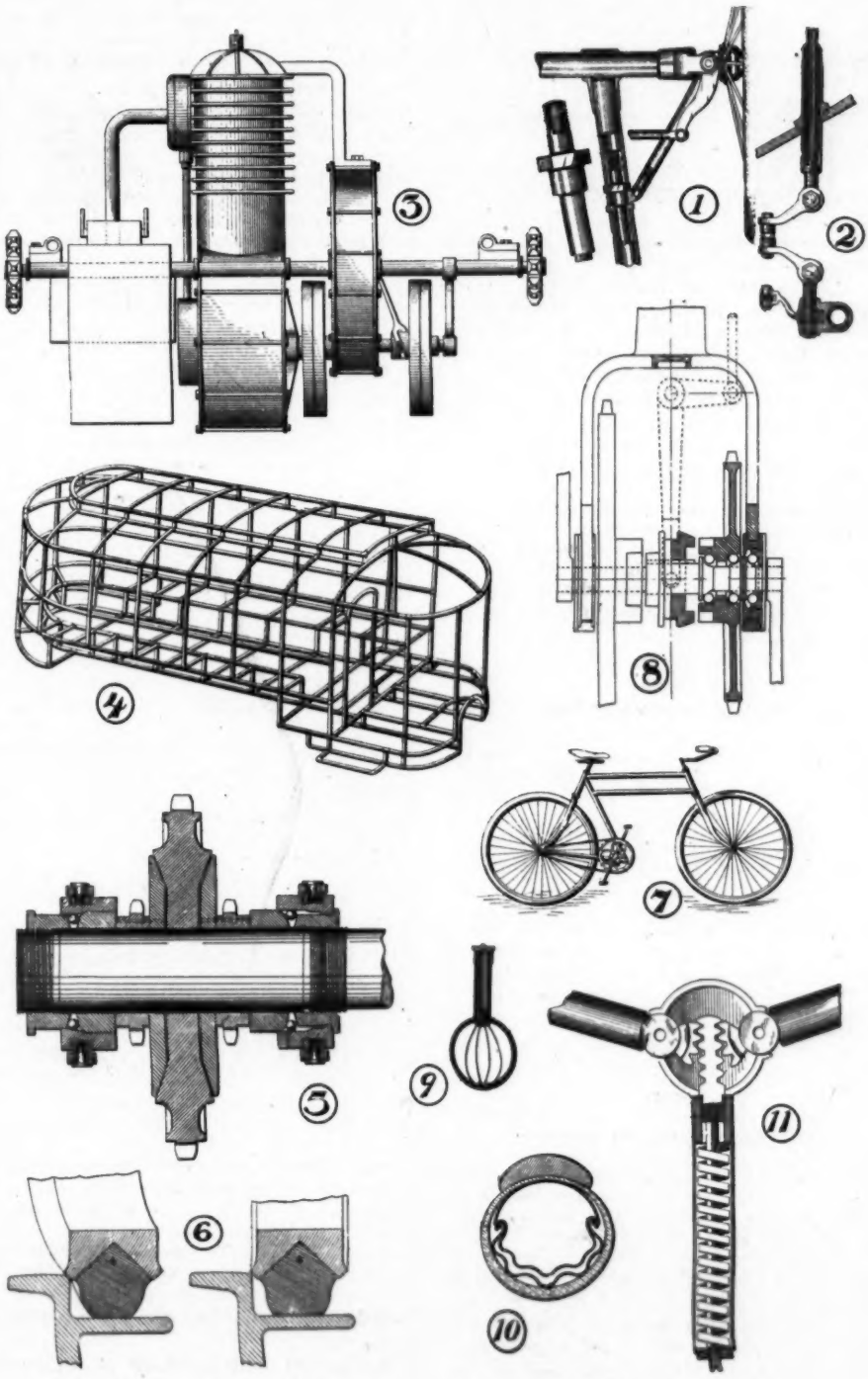
New York, June 15.—The appellate division has declined to allow an appeal to the court of appeals in the Jonathan West automobile case.

The action was brought by Mason Bros., laundrymen, for damages to one of their delivery wagons resulting from a runaway. It was alleged that Mr. West was negligent in operating such a vehicle, and the municipal court decided that he was.

The county court set aside this verdict and the appellate division, in turn, reversed this decision. Now it refuses to allow the case to be carried up.

Since the action began Mr. West has died, but the family continued the litigation in the hope of casting aside the aspersions that had been cast upon the vehicle.

James C. Church, of the A. C. A. law committee, says that the club will appeal the case, and it has instructed its counsel on the spot so to do.



THE WEEK'S PATENT DRAWINGS.

INFORMATION FOR BUYERS AND BUILDERS

It is evident that the Twentieth Century Mfg. Co., which makes the Twentieth Century headlights, does not intend to be outdone in the way of an exhibit at the Buffalo exposition. Its space is of generous proportions, built up in handsome style, decorated in white and gold and surmounted by the company's trade mark illuminated by a myriad of electric lights.

The booth is furnished and upholstered in sumptuous style. The exhibit is broad in scope, consisting of lamps burning either oil or gas for cycles, carriages and various other purposes, such as boats, barges, mining and hand lanterns.

A feature of special attractiveness is the life size statue representing the American girl. The figure was sculptured by Miss Bessie Potter, of Chicago, Maud Adams being the model. It is claimed to be the largest lump of gold in existence, the weight being 600 pounds and the value $250,000. Particular stress is laid on the fact that the statue is strictly American in its make-up, having been made by an American sculptor from an American model and cast and finished by American firms.

Miniatures of the statue have been provided as souvenirs to be presented to visitors at the booth for whom accommodations have been carefully arranged in the way of souvenir stationery, etc. A cordial invitation is extended to the public.

DIAMOND RUBBER PLANT

Three years ago the Diamond Rubber Co., of Akron, O., was a comparatively small concern. It had made a great many cycle tires and was well known in the industry, but in other lines it had not commenced to spread as it has done since. About that time Walter B. Hardy, William B. Miller and Arthur H. Marks, all experienced eastern rubber men, took the management as president, secretary, vice-president and superintendent respectively. Up to that time the company was employing comparatively few hands and was manufacturing a limited line of mechanical rubber goods and some bicycle tires.

As soon as the plant was turned over to the new management, extensive improvements were made in the factory and offices, and the selling force was thoroughly organized. An aggressive campaign was planned and fully carried out. Month by month the business expanded until the old buildings could no longer take care of the growing trade. New buildings and much special machinery were added, until today the buildings occupy 14 acres, and the company aspires to the distinction of operating the largest rubber plant in the world.

There are 21 acres in the present property and the balance of the space will be covered with the largest exclusive tire factory in the world. The building will be 100x350 feet and five stories high, and will be so arranged that every operation in the manufacture of pneumatic and solid tires will be accomplished under one roof. Ground will be broken for the structure at once and the building is expected to be completed by August 1st.

This building will be in the rear of the present plant and after the tire department is properly installed, the present factory will be devoted exclusively to the manufacture of mechanical and hard rubber goods. The boiler capacity at present is 4,000 horsepower, and engine capacity 3,000 horsepower. Twelve hundred people are employed.

The tire department, in its present quarters, presents a busy scene. Men and women, in separate departments, fairly elbow each other for want of space, and in order to take care of orders in this department alone 800 men and women are kept busy 24 hours a day.

The bicycle tire department has orders booked for 5,000 pairs of tires a day up to July 1. Great difficulty is experienced in making prompt shipments, but conditions are adjusting themselves gradually and deliveries are being made with little or no delay.

The motor and carriage tire departments have all they can take care of, orders having been booked for 13,000 sets of carriage tires and 1,000 sets of motor tires, which the company claims is 80 per

cent of the bike wagons and automobiles that will be built this year.

Scientific knowledge of compounding rubber and the faculty of meeting the requirements of the trade promptly and efficiently are the reasons assigned for the remarkable growth of the company's business.

GOOD MANAGER IN CHICAGO

The Electric Vehicle Co. has selected, as manager of the branch lately opened at 267 Wabash avenue, Chicago, a man whose abilities the president of the company has had abundant opportunities to gauge. When Mr. Day was vice president of the Pope Mfg. Co., Mr. Budlong, whose picture appears in this issue, was selected to manage the Chicago branch. His connection with the company commenced many years ago when he represented it as an agent at Rockford, Ill.

G. H. ATKINS,
Special representative of the Electric Vehicle Co.

So successful was he and such sterling qualities did he display that he was offered a position in Chicago and for a long time served the company there and on the road with complete success. Later he was offered the management of the Chicago branch and there again his administration of affairs was so satisfactory that when Mr. Day became president of the Electric Vehicle Co. he selected Budlong as manager of the western interests of the company. For a long time he was at the head of the Siemens-Halske Co., indeed he still occupies that position in connection with the more important one of manager of the company's western automobile interests.

Associated with Mr. Budlong is G. H. Atkins, who, until a few weeks ago, was treasurer of the Woods Motor Vehicle Co. Atkins left the old position to accept the one offered him by the Electric Vehicle Co., which is that of special representative. He has been connected with electrical interests for a number of years, having gone to the Woods company from the General Electric Co., of which he was chief clerk.

The Chicago branch will handle all the territory from Chicago to the Pacific coast. The company is making preparations for an active campaign and desires to place agencies with the best class of people in all cities west and south of Chicago.

COLE'S LIBEL SUIT

Steuart & Steuart, attorneys, of New York, have written as follows to the G. W. Cole Co.:

We beg to report that the case which was brought by the Buffalo Specialty Co., of Buffalo, against your G. W. Cole and J. Noah H. Slee for alleged libel, came on for trial at Buffalo in the supreme court, trial term, on June 3, and was tried during June 3, 4 and 5. Your case was presented by our associate, Almet R. Latson, and after a careful consideration of the questions involved, Judge Keneffink took the case from the jury, non-suiting the plaintiff, i. e., the court held that no cause of action was established by the plaintiff. We most heartily congratulate you on the favorable result of this suit. We beg to report also that the Buffalo Specialty Mfg. Co. has brought two suits against you in the United States circuit court. We presume that these cases are suits for infringement on the Duryea and Curlin patents, but we have not yet seen the complaints. We will take these cases up in due course and represent you in the matter.

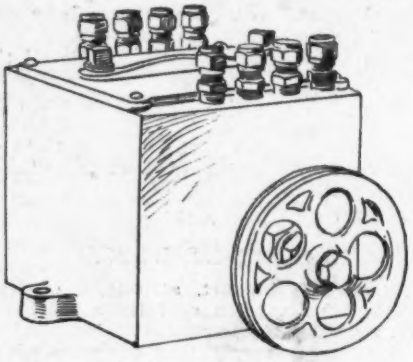
A MECHANICAL OILER

If the John F. McCanna Co., 244-246 Wells street, Chicago, is not over-sanguine in regard to its automatic oiling machines you may throw away your oil can. The company manufactures a line of automatic oiling apparatus which it lists under the name "Hydromechanical." It has a variety of patterns of this machine, with arrangements for oiling from one to twenty points and ranging in capacity from one quart to ten gallons.

The particular machine to which attention is called is the special one for automobile service. This is specially designed

for the purpose and can be made an integral part of the carriage. By its use it is claimed that thought or care regarding lubrication becomes needless. When the carriage starts the oiling begins automatically at every point requiring oil. The action is continued in ratio with the speed of the machine and stops when the carriage stops.

The quantity of oil required at each point is predetermined from practice and,



The Hydromechanical Oiler.

once set for the determined quantity, the action is entirely automatic. The manufacturers lay particular stress on the oil economy and perfect lubrication obtained by the use of these machines, and claims that the reduced friction will add further saving in fuel and repairs sufficient to, in a short time, entirely pay for the equipment. They have a long line of testimonials from thoroughly satisfied users of their device which they are pleased to submit to anyone who may be interested in reducing the care and worry, as well as inconveniences, incidental to the proper lubrication of complicated machinery. Among the Chicago people who have used the device is Dr. Pine, who speaks most highly of its accomplishments.

CATALOGUES RECEIVED

The catalogue of steam carriages, recently issued by the Stearns Steam Carriage Co., of Syracuse, is a handsome little booklet of 16 pages and is well written, well illustrated and of neat and artistic design. The company's line of carriages is described in detail and the text is interesting reading to anyone desirous of information on the subject of which it treats. In addition to the careful attention given to the constructive details, directions for opperation are given in a maner extremely simple and concise.

The beauties and desirability of the Mitchell motor bicycle are set forth in a neat little pamphlet just issued by the Wisconsin Wheel Works. The cover, printed in two colors, is designed to show the joyful ease with which the motocyclist speeds his way, while the text, in addition to pointing out the advantages of the motocycle over other methods of locomotion, gives a brief description of the company's regular line of bicycles. This is number eight of a series of small catalogues gotten out by the Wisconsin Wheel Works, the management having adopted this style of advertising for this season in lieu of a single, large catalogue. The results of the experiment have been satisfactory.

STANDARD GAUGES

The Standard Gauge Mfg. Co., of Syracuse, manufactures self-contained pressure gauges which are particularly adapted to automobiles. Manager Mundy explains that this is due to the fact that the movement is free from the back of the case and supported from one point only, namely, at the side or bottom, and is not affected by jar or vibration. One of the largest steam companies in the United States is making a specialty of this gauge and adopted it after various experiments with others, which is the best sort of testimonial the company could wish.

The gauge can be made with any desired name on dials, when ordered in quantities of one dozen or more, and is usually made with ⅛-inch male pipe connections, or will be made ¼-inch female or ¼-inch male or female if preferred.

The Standard Gauge Mfg. Co. also makes pop valves for automobiles. The best of workmanship and care in setting and adjusting the spring under actual working conditions is a feature of the manufacture. The company manufactures largely automatic self-closing water gauges and gauge cocks.

All of these articles are of high grade workmanship and material. The automobile business with the Standard Gauge Mfg. Co. is only a small item as compared with other business, but it is looking after the automobile trade closely.

WESTON'S GOODS ARE READY

Frank F. Weston, of 99 Chamber street, New York, has entered the automobile business and will make as big a success in that line as he has done in the bicycle trade. Mr. Weston graduated in the hardware business, and from that into the bicycle trade. His office is a busy place, as he represents several big firms as selling agent. He is now marketing a superior and stylish running gear for automobiles, and boilers which are being turned out at a factory in Passaic, N. J.

Weston is too old a bird to market any-

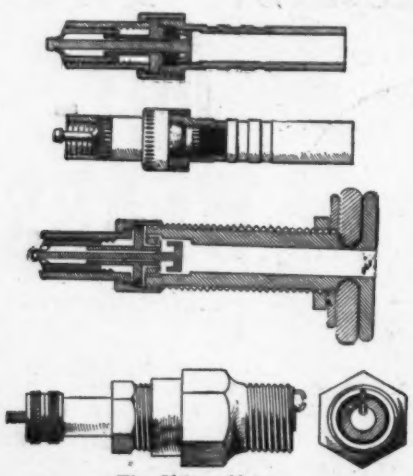
thing unless he knows it will last and command the respect of buyers, and so he has been doing a lot of "getting ready" work, and now announces his plans and goods as complete and ready for the market. He is also making a clever little tool which is in great demand, and is known as a boiler tube expander, which is illustrated in an advertisement elsewhere.

WANTS MORE ROOM

The Erie Cycle & Motor Carriage Co., of Anderson, Ind., which has been working on gasoline and steam carriages for the last three years, has bought the interest of J. B. Lott & Co. in their steel tube spoke motor carriage wheel. The company is also adding a department for the manufacture of metallic carriage bodies, which in connection with its own gasoline and steam carriages gives it a prominent place in the new industry. It is rumored that the company is figuring on locating in a good city near Chicago, where good inducements are offered, as it requires more room.

A NEW VALVE

An innovation in the way of a tire valve is the Hilton, now being marketed by C. B. Barker & Co., 93 Reade street, New York. Its notable feature is the absence of cap and spring, the closure being made automatically by the pressure



The Hilton Valve.

within the tire, leakage being prevented by the rotation of a small union to which the pump is attached and which is so constructed that this action forces the plunger firmly against the valve seat.

Air is admitted by unscrewing the union on top of the valve in the same manner that the cap is removed from the ordinary valve, after which the pump connection is screwed into the thus exposed internal thread. If no swivel is provided on the pump the connection may be held still and the valve union turned, which will open the valve and connect the pump at the same time. Deflation is accomplished by releasing the union in the manner above described, after which the plunger may be pressed down, releasing the air.

If it is desired to remove the valve it may be entirely taken apart with the fingers. It is plated inside and out and is thoroughly guaranteed.

THE VEEDER FACTORY

The ordinary observer who should happen to pass the Veeder factory at Hartford would come to the conclusion that it was a young ladies' seminary. Not because there are young women working there, but because of the general natty appearance of the building and the grounds surrounding it. It is built on the plan of the Veeder odometer. D. J. Post has done wonderfully well with the business and has been ably seconded by Messrs. Veeder and Lester. These people deserve all the success that has undoubtedly come their way and the growing importance of their sundry department keeps them very busy. Mr. Post persists in his automobile studies, but the other day while at a ball game he forgot to turn off the fire and the next day the machine was in sections on the lawn.

MIDGET PARCEL CARRIER

The Midget Mfg. Co., of Buffalo, may fill a want with its midget parcel or luggage carrier. George B. Johannot, the old Main street sporting goods and bicycle dealer, is at the head of the company and says that the demand has been so good that facilities for manufacture are being enlarged. The Midget weighs about two ounces and can be snapped on the handle bar in a jiffy and taken off as quickly. The price is ten cents and the carrier is mounted on an attractive advertising cardboard with the figures prominently displayed. Such firms as E. H. Hall Co., of Rochester, are sending out a special advertising leaflet calling attention to the Midget.

CATERS TO ALL

The International Autocar agency, of 99 Nassau street, New York, will be found of great convenience to those intending to purchase automobiles, as it caters to

all requirements, furnishing electric, gasoline or steam vehicles of all makes, American or foreign, new or second hand. The agency handles a fine electric vehicle, which it recommends highly. It has a large capacity and early buyers can obtain prompt shipments. The agency is in direct communication with the larger and more prominent manufacturers abroad and can deliver their products promptly, attending to their receipts and all the custom house business. An extensive line of desirable second hand bargins is at hand and the agency stands ready to purchase second hand vehicles of proper standard, which are in first class condition.

A TWO-CYCLE MOTOR

C. A. Coey, inventor of the well known railroad attachment bearing his name, is now offering a 5-horsepower gasoline motor of the two-cycle type. This type of motor has been but little used for motor vehicle purposes, but it is claimed that for simplicity and ease of control the new motor is a wonder and entirely eliminates many of the frailties of the four cycle device.

The engine has a single 4½x5-inch water jacketed cylinder, the fly wheel is 20 inches in diameter and the entire weight of the engine is 225 pounds. It is claimed that a variation of speed of from 425 to 1,000 revolutions per minute may be obtained at a gasoline consumption of one cent per horsepower hour.

Particular stress is laid on the easy accessibility of the working parts and the readiness with which the engine may be taken down and reassembled even by the inexperienced. It is guaranteed for a period of five years against imperfect workmanship or material and is marketed by C. A. Coey & Co., 177 LaSalle street, Chicago.

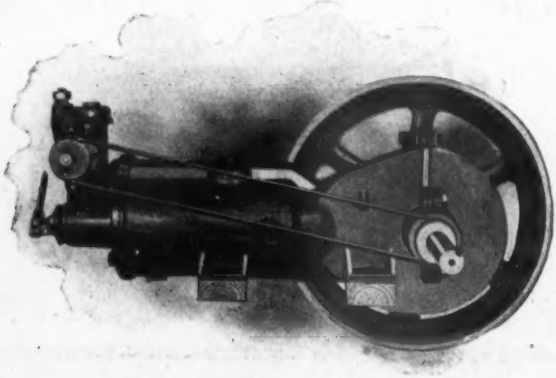
Mathew Judge, a well-known cyclist of New York, whose address is 61 Maiden Lane, is pushing a well-known cleaning substance. It is called Kaoline. Mr. Judge is making headway among automobile owners, as Kaoline can be used to polish not only the finest of nickel plating, but also glass, as it contains, he declares, no grit and will not scratch or mar the most delicate or highly polished surface. It is particularly good for cleaning delicate instruments.

Henry C. Squiers & Son, the old Courtlandt street, New York, sporting goods and bicycle people, have gone into the automobile business and are selling almost any known make on the installment plan. Mr. Squiers told a representative of this paper that he believed the installment plan will be most popular judging from the number of people who come and inquire about the relative merits of the automobiles.

The Hockaday Hardware Co. will materially enlarge its sporting goods department when it moves into its new building about August 1. It has secured the services of A. J. Mussleman, a thorough sporting goods man, who will take charge of that department at once and begin purchasing fall stock. The company asks that all manufacturers of goods in that line send them catalogues.

The Steamobile of America, whose factory is at Keene, N. H., has opened an office and salesroom at 122 and 124 Massachusetts avenue, Boston, Mass., under the direction of Herbert R. Averill, who will be pleased to show the good points of the Steamobile in operation to all prospective purchasers of motor carriages.

The Meilink Mfg. Co., of Toledo, Ohio, which once figured in the bicycle trade, is now making a feature of special machinery, dies, tools and parts.



COEY'S TWO CYCLE MOTOR.

ALDERMEN IN CLOVER

The arrangements for the aldermanic invasion of the Chicago boulevards and parks in automobiles have been made. As has already been related, Mayor Harrison, in response to a suggestion made by this paper, appointed a committee to arrange for an outing so that the aldermen might be enabled to judge of the speed, ease of control, etc., of automobiles. Alderman Scully, one of the first and most enthusiastic automobilists in the city, was made chairman of the committee and took to the proposition as readily as a duck takes to water.

Last Thursday evening the matter was laid before the Chicago Automobile Club, which adopted a resolution to this effect:

The club will hold a run on Saturday, June 29, assembling at the city hall at 2 o'clock. It will issue invitations to all owners of automobiles, stating the object of the outing and urging them to be present and provide as many seats as possible for the aldermanic guests. The trade houses will also be asked to participate and many of them have already promised to do so.

The party will probably go to one of the west side parks and there, having first obtained the permission of the park commissioners, will proceed to demonstrate various speeds, the ease of operation of the vehicles, how quickly they can be stopped when going at fast speed, and so forth. One of the aldermen, a believer in horse flesh under any and all conditions,

Catalogue Department

THE MOTOR AGE has established a catalogue department and will forward the catalogues of any or all advertisers on request.

The objects of this department are as follows:

1. To save the reader the trouble and expense of writing to each individual concern whose catalogue he may need.
2. To place advertisers in direct communication with prospective purchasers.

Applicants for catalogues will please state specifically the names of the concerns whose catalogues they desire and enclose stamps to cover postage.

Applications should be addressed to the Catalogue Department, MOTOR AGE, Monon Building, Chicago.

will be asked to bring along one of his horses for the purpose of demonstrating how much easier it is to stop an automobile than a horse, at no matter what speed they may be traveling.

The city hall facilities, in the form of electricity and water, will be ready for the use of participants in the run. The club hopes, by this event, to remove some of the prejudice at present existing and to thus render valuable service to the cause.

Mrs. E. H. Eddy, of Detroit, and a party of friends are figuring on a trip to Buffalo by automobile. They will probably go by way of Canada, some time toward the end of this month or the beginning of July.

The Eastman Metallic Body Co., of Cleveland, writes that it is very much behind its orders and that the factory is working night and day to catch up. The company is arranging to occupy larger quarters.